

also been presented elsewhere,⁵ I would point out that I consider it proved by the above considerations that no concept of precancerosis based upon probability of a lesion's becoming cancerous is a tenable concept.

The only meaning for precancerosis that is tenable is as a name for lesions which may or may not be early cancer, which lie in impenetrable doubt, and which cannot be decided upon. This is a usage devised solely as a cloak for ignorance and to designate lack of knowledge.

If precanceroses were thought of as those lesions which are becoming cancer the name would be synonymous with early cancer. If precanceroses are lesions in which cancer is likely to develop the dividing line between cancer and non-cancer is left indecisive, undefinable and not understood.

I would therefore discard the term completely, for it is an idea not an observable reality and on analysis proves to be a confusing makeshift.

It may be difficult or even impossible to decide whether a lesion is cancer or is not; but it is the interpretation that is equivocal not the pathologic process.

I would describe earliest skin carcinoma clinically as circumscribed epithelial lesions that have arisen *de novo*, being generally brownish, rough, scaly or verrucose, asymptomatic or slightly pruriginous, occurring by predilection on surfaces exposed to irritant irradiation (solar or roentgen ray). Microscopically, they manifest squamous epithelial irregularity, acanthosis and dyskeratosis, (1) with changes in cell type or the order of abnormal mitoses and atypical morphology, (2) with such arrangement as would justify presumption that continued cellular proliferation would result in the production of a structure compatible with the generally accepted concept of carcinomatous structure, and (3) with a round cell reaction in host tissues regularly observed to be most intense in the immediate vicinity of greatest epithelial abnormality.

Such a description is independent of the size of the lesion, in accordance with my conviction that one cell can constitute a cancer. It is independent of rate of growth, for progression may be so slow as never to interfere with the welfare of the host. It stresses the interpretation that cancer in the gross is solely the manifestation *en masse* of cellular growth. It enables malignancy to be defined in terms of cellular properties and conceives degrees of malignancy as pri-

marily ratios of growth-rates. It is a concept arrived at from the standpoint that an autonomous colony of cells may be investigated embryogenetically. It is eminently practical, for it encourages suspicion of tiny lesions, often misnamed verrucae or dykeratoses, which frequently possess potentiality for ultimately vastly harmful progression. Its therapeutic correlate is that minute lesions deserve significant attention and unrelenting destruction.

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BIBLIOGRAPHY

1. Bloch, Bruno: Cancers and Precancerous Affections from the Dermatological Viewpoint, *Cancer Rev.* 7:65 (February) 1932.
2. Cramer, W.: *Brit. J. Dermat.* 41:177, 1929.
3. Sulzberger, M. B., and Satenstein, D. L.: Erythroplasia of Queryrat, *Arch. Dermat. and Syph.* 28:798 (December) 1933.
4. Heimann, W. J.: Precancerous Dermatoses, *J. Cancer Research* 1:343 (July) 1916.
5. Sutton, Richard L., Jr.: Early Cutaneous Carcinoma, *J. A. M. A.* 104:433 (Feb. 9) 1935.

THROMBO-ANGIITIS OBLITERANS (BUERGER)

ITS RECOGNITION AND TREATMENT BY THE
PRACTITIONER

PAUL S. LOWENSTEIN, M.D.

ST. LOUIS

Thrombo-angiitis obliterans is the term applied by Buerger to a disease of the peripheral blood vessels characterized by an inflammatory process which at the onset occludes particularly the deep and larger arteries and veins of the lower and upper extremities. Examination of the occluded vessels shows a widespread perivascular fibrosis binding together artery and its veins and at times the accompanying nerve, so that frequently these structures make up a dense rigid cord in which isolation of the vessels and nerves becomes impossible.

ETIOLOGY

The etiology of this interesting syndrome is still in doubt although abnormalities of the blood, blood vessels, sympathetic nervous system and glands of internal secretion have each been cited as playing a part in causation. Silbert¹⁷ postulates a hereditary transmitted defect, probably sex-linked in character, while Brown and Allen⁵ believe that an infectious or bacterial toxic substance is responsible. There are, however, a number of factors definitely known. Thrombo-angiitis obliterans is preponder-

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INDEX TO VOLUME 32

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OCULAR COMPLICATIONS OF GONORRHEA

CHARLES M. SWAB, M.D.

OMAHA, NEBR.

When the ocular tissues become infected by the gonococcus, the disease in most cases is looked upon as a complication. In other words the transmission is not from eye to eye as a rule, but is often the result of contamination of the ocular structures from a focus in the genito-urinary tract. The exception which is inferred is conceivable in the instance of an attendant whose eyes might be infected from the conjunctival discharge of a patient. Would that the problem offered no greater obstacle than the prevention of such a mishap! In order to present a general view of the subject during the time allotted it will be necessary to limit the topic to points that are admitted quite beyond the range of cavil.

There is one phase of the subject which in the circumstances cannot be unduly stressed. This is ophthalmia neonatorum, the cause of which can usually be traced to the gonococcus. To forestall controversy we may admit that in some cases the conjunctivitis of the new-born is brought about by other organisms than Neisser's diplococcus. Whatever the cause, it is a challenge to every straight thinking physician that our prophylactic methods or their application do not prevent the development of gonorrheal conjunctivitis in infant patients.

It has been the common opinion for many years that Credé prophylaxis, when properly administered, is one of the most dependable single measures in the entire field of preventive medicine. This is attested by the fact that almost every state in the Union requires that silver nitrate drops (1 per cent or 2 per cent solution), be instilled

in the eyes of every infant at the time of birth. Many writers contend that the instillation of silver nitrate drops in compliance with the law will kill all gonococci which have gained entrance to the conjunctiva during the passage of the baby's head through the birth canal. To avoid another controversial point let it be accepted that intra-uterine infection of the eyes is possible, though admittedly of rare occurrence. In cases of prolonged labor with early rupture of the fetal membranes it is obvious that conjunctival contamination from the mother's tissues would be more likely than in the case of a more rapid birth.

Besides the possibility of birth canal contamination of the conjunctiva which usually develops within a few days into a purulent inflammation of the entire conjunctival sac, we occasionally encounter this type of conjunctivitis only after the baby is a week or ten days old. Have these micro-organisms been present in the conjunctiva since birth? Have they been hidden in the meibomian ducts where they muster strength in both numbers and virulence for a delayed assault upon the conjunctiva or is this late conjunctivitis due to bacteria that have been introduced into the conjunctiva since birth?

It seems unreasonable to premise that the gonococcus would remain in the meibomian ducts for several days without producing symptoms and after gaining access to the conjunctiva set up an acute inflammation. This however is believed to be the fact by some writers who employ this theory to explain the late development of ophthalmia neonatorum. No critical study of the meibomian ducts of the new-born has been reported that indicates a patency of their openings on the lid margin when the child is ushered into the world. It may be added here that the existence of this condition has not been specifically denied. One may settle the point only by studying it as a research problem; that is, with an open mind.

Although conjunctivitis is frequently met with in babies that have had prophylaxis with silver nitrate it has been the author's experience to find that most of these cases were very mild even though the gonococcus was found in the smears. Perhaps the organisms had not all been killed at the time of birth but were unable to set up an inflammation until a chemical irritation of the conjunctiva had been brought about by the action of the silver nitrate drops. Some of the essayist's cases are explainable on this hypothesis.

That some cases of late conjunctivitis in the new-born are caused by the introduction of organisms into the eyes after birth seems definitely established. In some instances female babies have been known to have gonorrheal vulvovaginitis that preceded a gonorrheal conjunctivitis. With respect to this condition, Weston¹ recommends the use of silver nitrate prophylaxis of the vagina as well as for the eyes of female infants whose mothers have gonorrheal vaginitis. There is no doubt that the eyes of many infants are inoculated by a mother's fingers after she has carelessly touched her contaminated vaginal discharge. The same rôle as a source of infection is sometimes ascribed to nurses.

During the last ten years the writer has come upon fourteen bacteriologically proved cases of ophthalmia neonatorum due to the gonococcus. Seven of these were found in private practice while seven were in clinic patients. In most instances there was no doubt but that silver nitrate drops had been instilled at the time of birth. On two occasions this duty was relegated to a nurse, as at the time it was necessary for the attending physician to concentrate his attentions upon the mother. Ten of the series, or 71 per cent, developed purulent conjunctivitis by the end of the fifth day. The remaining four cases were apparently well by the end of a week; but two of them developed purulent conjunctival discharge on the ninth day, one on the tenth and one on the eleventh day; in the last case referred to, the mother was going home from the hospital when the conjunctivitis was first discovered.

Although most of these cases presented lid swelling, velvety swelling and redness of the conjunctiva, profuse discharge of golden yellow pus and bleeding of the conjunctiva when swabbed, there was no corneal involvement in any case. The routine that was employed in treating these patients is presented here for consideration. At one of the hospitals where the nurses are accustomed

to this therapy it is referred to as the 1-2-3-4 treatment. Briefly, it is as follows:

1. Iced boric acid compresses for three minutes every two hours.
2. Warm boric acid irrigations every two hours.
3. Instillation of fresh 10 or 15 per cent argyrol every two hours.
4. Application of sterile vaseline on the lid edges every two hours.

The rationale of this therapy is to inhibit the growth of the gonococcus by means of cold, cleansing and antisepsis. The ointment on the lids is to prevent the formation of crusts or scales that might scratch the cornea and to promote an outflow of any discharge that might accumulate in the conjunctival sac.

It was noted that many of these babies seemed unduly emaciated, a condition which is rather favorable to the development of an inflammation in an end organ. To meet this exigency foreign proteid was added to the 1-2-3-4 therapy. For the purpose fresh whole milk was used; it was boiled for four minutes by way of preparation. The milk was injected in amounts of $\frac{1}{2}$ cc., 1 cc. and $1\frac{1}{2}$ cc. respectively on three successive days. The site of the injections was the gluteal region; careful treatment of the skin before and after injections was always attended to. It was never necessary to resort to subsequent doses of the foreign proteid.

Some of the earlier cases of this group had a daily application of $\frac{1}{2}$ of 1 per cent silver nitrate solution to the palpebral conjunctiva which was always irrigated with warm boric acid solution after one minute. When the silver nitrate was omitted from the regimen the results were equally as satisfactory and just as quickly attained. Consequently it was not used in the treatment of any of the last eight cases.

Gonorrheal ophthalmia in the adult is a much more serious problem in some ways than it is in the case of babies. Comparatively few adults get conjunctivitis from their genito-urinary infections. This is explained upon an immunological hypothesis. Where ophthalmia does develop from acute urethral infections or from gleet there are more hazards from complications than in ophthalmia neonatorum. The essayist has had four cases of gonorrheal ophthalmia in adults; three of these were private patients while the fourth was a charity case that was referred from a government transient corral. Strange to say the charity patient who was seventy years old was the only one that did not have a urethritis. How he acquired the

infection is not known. His first question was to find out if he could have picked it up in a toilet. Three of the patients had bilateral infections; all were hospitalized. One patient had an extensive necrosis of one cornea when admitted; his other cornea was spared. Only one patient escaped corneal complications.

The corneal complications were not brought on by abrasions of the corneal epithelium and subsequent infection: they commenced as infected infiltrates which did not stain for two or three days after they were detected. When they had broken through to the surface of the cornea they had also penetrated quite deeply. The two cases that perforated did so while the eyes were protected by a compress bandage. One of these perforated twice, but closed each time without incarceration of the iris. The case which has just been referred to seems deserving of further mention. Besides gonorrheal urethritis and gonorrheal conjunctivitis of both eyes at the time he entered the hospital it was soon known that the patient had a four plus serum Wassermann. So much attention was focussed upon theluetice condition that the patient developed a very extensive posterior urethral inflammation. While the writer does not wish to infer that any blame rests upon the attending urologist, he cannot commend the manner in which the case was treated. All genito-urinary specialists should know that posterior urethral infections due to the gonococcus are potential hazards to the eye, and they should never be partial to theluetice therapy when both infections exist simultaneously.

The patient under consideration was dismissed from the hospital as soon as his cornea became fully healed. His office record shows that he had an uncorrected vision of 20/20 minus 3 in each eye two months after he entered the hospital. Three months later, however, he began to have recurring iridocyclitis of a plastic type, definitely of gonorrheal etiology. Hospitalization, subconjunctival injections of epinephrine, foreign proteid and treatment of his posterior urethral foci failed to save the vision of one eye. When last seen by the writer ten months after he entered the hospital the vision of the left eye had fallen to less than 20/200.

In gonorrheal iridocyclitis, posterior synechiae form quickly and adhere tenaciously. Some writers hold that there is definite invasion of the uveal tissue by gonococci;

others presume that the inflammation is due to blood-borne toxins which derive from a focus in the genito-urinary tract. The treatment is essentially the same as in other types of iridocyclitis although gonococcic vaccine is sometimes used both for its foreign proteid effect and also for its specific value. When treatment of plastic iridocyclitis is instituted early the outcome is often favorable; but as both the seminal vesicles and the prostate are likely to be foci in such cases it is difficult to remove the cause; consequently recurrences are the rule. The prognosis becomes increasingly worse with each recurrent attack.

DISCUSSION

Although Credé prophylaxis or a modification thereof is required by law or board of health regulation in almost every state there is no way of enforcing the treatment. It may be said to the credit of the medical profession, however, that its members are ever willing to abide by humanitarian practices. When the care of the eyes of the newborn is left to a midwife it would be too much to expect a scientific application of Credé's prophylaxis. This procedure is exacting enough for even the physician's best efforts after an exhausting accouchement. Should the author be consulted about the technic of instilling silver nitrate drops on these occasions he would suggest the following simple routine:

1. The attending physician should assume full responsibility for carrying out this measure even though he cannot do so for an hour after the baby is delivered.
2. If the doctor is wearing rubber gloves and cannot remove them for this procedure, the baby's eyelids should be separated by means of dry gauze which will not slip when making contact with the vernix caseosa on the skin.
3. The silver nitrate solution should be used from a wax covered ampoule which is plainly marked as to strength and age.
4. The label of the silver nitrate container is to be held toward the physician for his scrutiny before the drops are instilled.
5. When 1 per cent solution is used it may be left in the conjunctiva after manipulating the lids to insure its dissemination.
6. Should 2 per cent silver nitrate solution be employed it is advisable to flush the conjunctiva after an interval of five minutes with physiological salt solution, boric acid solution or sterile water.

The chemical irritation of the conjunctiva which sometimes follows the use of silver nitrate is as a rule not very serious. The writer saw one case that resulted in the blindness of one eye when a 10 per cent solution was inadvertently instilled in both eyes. Another infant had bilateral corneal

ulcers caused by a 2 per cent solution. In this instance after the drops were instilled, they remained in contact with the corneae when the lids were squeezed; the ulcers were caused by a chemical erosion of the corneal epithelium. Simple conjunctivitis which results from silver nitrate irritation is usually of brief duration when not overtreated. Occasional daily irrigations of the conjunctival sac with weak zinc sulphate in boric acid solution usually suffice to clear up the condition within a few days.

Several different regimens of therapy have been suggested by ophthalmologists for the treatment of gonorrheal ophthalmia in the adult. British specialists are inclined to look with favor on a treatment that is somewhat different from that approved by the oculists in this country. They hold that by continuous irrigations with a warm solution of magnesium sulphate, boric acid or other mild antiseptic, the outcome is rather favorable and the subsidence of the infection is quite rapid. Heckel² reported good results from the use of an iced physiological salt solution; douches of the closed eyes were used continuously for eight or ten minutes every six hours. Between these treatments iced pads were continuously applied. Redding³ speaks enthusiastically of his results with parenteral therapy.

Writers now agree more or less that silver nitrate is of little value in the treatment of adult cases of gonorrheal conjunctivitis. Several even go so far as to lay some of the bad results to its use. The writer's only case that escaped corneal implication was treated with silver nitrate. This was applied once daily in the form of $\frac{1}{2}$ of 1 per cent solution and was flushed out at the end of one minute.

For the most part, the 1-2-3-4 treatment is effective in these cases when supplemented with foreign proteid injections. This treatment is sufficiently elastic to be used on any time schedule. It is the rule in most hospitals to isolate cases of gonorrheal ophthalmia. The responsibility of carrying out the treatments is then specifically delegated to two nurses. Although it is contended that soap and cold water cleansing are fatal to the gonococcus, isolation is assuredly a wise precaution in these cases.

It is generally agreed that silver nitrate prophylaxis has reduced the number of cases of blindness in the new-born to a marked degree, but we must admit that perfection has not yet been attained. That the success of this treatment is almost entirely due to the humanitarian attitude of physicians has been

more than inferred, for even in our day there are a few states that do not have health regulations which specifically require prophylaxis for the eyes of the new-born. Doubtless, however, the physicians in those states practice some form of Credé prophylaxis in the cases at which they officiate.

In fifteen states where laws or board of health regulations provide for prophylaxis some of the following limitations apply. The procedure is limited, viz.: (1) to births in hospitals and maternity homes; (2) to births attended by midwives; (3) to cases in which possibility of infection is suspected; (4) to cases in which there are no parental objections to its use. From the statistical data which have been collected by the National Society for the Prevention of Blindness it is readily seen that intelligent cooperation of physicians, hospital attendants and the laity is responsible for the best results.

CONCLUSIONS

1. It is the duty of the attending physician to carry out prophylaxis for the eyes of the new-born and to make daily inspection of the eyes until both mother and baby are dismissed from his care.

2. Silver nitrate drops in preference to other silver preparations are recommended by physicians of large experience.

3. Ophthalmia neonatorum which develops after prophylactic drops have been used is generally responsive to suitable treatment.

4. Gonorrheal ophthalmia in the adult is often further complicated by involvement of the cornea.

5. Iridocyclitis due to gonorrheal foci in the posterior urethra frequently results in loss of vision.

6. The best results in preventive measures are brought about through the intelligent cooperation of the physician, the attendants and the family.

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BIBLIOGRAPHY

1. Weston, Wm., Jr.: Gonorrhea Vulvo-Vaginitis and Ophthalmitis in Children, Report of 3 Cases, *J. S. Carolina M. A.* **28**:56 (March) 1932.
2. Heckel, Edward B.: Gonococcal Purulent Conjunctivitis; Treatment by Exclusive Use of Iced Physiologic Solution of Sodium Chloride, *J. A. M. A.* **92**:1582 (May 11) 1929.
3. Redding, Leonard G.: Use of Foreign Protein in Treatment of Ophthalmia Neonatorum and Gonorrheal Ophthalmia, *Penn. M. J.* **36**:582 (May) 1933.

DISCUSSION

DR. A. N. LEMOINE, Kansas City: I am not prepared to discuss this paper but I have had considerable experience with gonorrheal conjunctivitis because I happen to have had two services in the Massachusetts Eye and Ear Infirmary in the infectious ward. During my service there for eight months I experimented to see what form of treatment was the best. I came to

the conclusion that irrigation was the secret of success in the treatment of gonorrheal conjunctivitis. Some of these cases we irrigated as frequently as every fifteen minutes. We aimed to keep the eyes free from pus. That is absolutely essential.

We used a weak solution of argyrol or protargol, not as an antiseptic but to precipitate the mucus and debris so it would wash out of the eye more readily. I agree with Dr. Swab that probably silver nitrate makes them worse. With this treatment I have never had a case develop corneal ulcers if I got them before there was an abrasion or clouding of the cornea. In my opinion irrigation is the most important procedure and should be carried out sufficiently often to keep the eye free of pus at all times.

Dr. Swab also mentioned silver nitrate irritation following prophylactic measures. This is not infrequent but I have come to the conclusion that the irritation is an allergic reaction; that the patient is sensitive to silver, and what proves it to my mind is that some cases that went for two or three weeks without any relief while colloidal silver preparations were used, the eyes got well as soon as the silver was discontinued. So it is important, when you get silver nitrate irritation to discontinue all silver preparations and merely keep the eye irrigated with normal salt.

Dr. Swab mentioned that in some cases of blennorrhea the organism is not the gonococcus, and I agree with him. I think a large percentage is not. It is my experience that about one third of the cases of blennorrhea are not gonococci in origin but pneumococci.

DR. E. J. CURRAN, Kansas City: I think our prophylaxis in this condition is all wrong. Some fifteen or eighteen years ago I happened to have a case in which 10 per cent silver nitrate was introduced into the eyes of a doctor's son. After it was washed out, and particularly a few days afterwards, I had to open up the eyelids; they were growing together. I did not know anything better to do so I put a little cortical membrane in there, and the eyes healed. I saw the boy three or four weeks ago and he has 100 per cent vision.

I have also made some experiments with silver nitrate. I used 2 per cent and 1 per cent, staining the cornea with fluorescein afterward. I found millions of small abrasions over the conjunctiva and cornea. This is an easy experiment to do and anyone can test it for himself. Use 1 per cent silver nitrate and wash it out with sodium chloride solution, and then stain with fluorescein.

It seems to me if you were to search for the most sterile place in the body it would be the eyes because they are closed. Why should we open them and instill silver nitrate, a thing which damages the cornea and conjunctiva and leaves a place open for infection from the eyelashes or the lids? That is where we ought to start our prophylaxis.

An experience that happened this week would go to show the very irritating properties of silver nitrate. We had in our hospital a cesarian section. The membranes had not broken and it was presumed that all the tendons were sterile; but eighteen hours after the operation I was called by an intern who told me that the infant's eyes were full of yellow pus, that they were closed and could not be opened, and he wanted to know what to do. I told him to take a smear and culture, and to take one from the doctor and his assistant. I do not think he took one from either of them, but he took the smear from the eye and there was nothing in it. The culture had not gone forward enough to know. But here is a case in which nothing had been put in. How could that child be infected? Surely not in utero. But how was it infected?

In my opinion we should start prophylaxis with the

mother long before the birth, and at least we should try to sterilize the eyelids and outside of the eyes before we put anything in the eyes. I think sterilization of the fingers is an important thing.

DR. JOHN GREEN, St. Louis: I believe I am correct in stating that only rarely is silver nitrate used in maternity hospitals as a prophylactic against ophthalmia neonatorum. Obstetricians are loth to use a solution which may set up a chemical irritation with discharge of the new-born's eyes. The mother is distressed and the doctor disconcerted. So it has come about that the Credé method has largely been replaced by careful cleansing of the baby's eyelids and the instillation of one of the milder silver protein solutions. With this method and careful observation during the first week of the infant's life there is very little danger of a virulent infection making any headway.

A mild conjunctivitis is exceedingly common in babies about one week old. It is practically always non-gonococcal in origin, lasts but a few days and, under the mildest treatment or no treatment at all, clears up.

Iritis due to toxins of the gonococcus occur in individuals with chronic or subacute prostatitis with associated seminal vesiculitis. The urologist should use great caution in the treatment; massage of the gland is contraindicated. Deep instillations of silver nitrate and protargol may be helpful; most efficacious is the operation of vasotomy and the injection of argyrol into the seminal vesicles. In one case thus treated, which failed to respond to atropin or any other local measure the eye became white and the pupil dilated widely with the breaking of all synechiae within 48 hours.

I would like to have Dr. Swab, in closing, give us a little more in detail the 1-2-3-4 treatment.

DR. CHARLES M. SWAB, closing: Dr. Lemoine, when you spoke about cases in the infectious ward were you referring to adult patients or to infant patients? I think there is no dispute whatever in regard to the efficacy of the treatment as it is conducted by the British. The only difficulty in the large general hospital is this: if you have to treat these cases every half-hour two nurses cannot do it. You have to have four, and perhaps six, on the job, and let them work in short shifts; but the hospitals do not have enough help to do that because when these girls are given that duty they are not fit to take care of other eye cases, or any other patients, for that matter.

In the treatment as it is conducted by most of the British ophthalmologists nowadays, they irrigate the conjunctiva with mild antiseptic solutions, and it is necessary to do it every few minutes in order to control the discharge of pus. If a half-hour interval is satisfactory, or even three quarters or an hour, that is employed. One man whose name I cannot now recall has gone so far as to make an incision through the upper eyelid and insert a fine catheter underneath the lid through this opening. The catheter is connected with an irrigator and a slight drop is controlled by a small Murphy attachment, and the solution is allowed to pass over the conjunctiva constantly. Of course the objection to this is the fear of the purulent infection extending from the conjunctiva into the lid tissues.

These cases diagnosed by Dr. Lemoine as silver allergy are those that I referred to as being cases of over-treatment, and that is my conception of them. But while we do not exactly agree on the diagnostic term to employ here the result is just the same. When you withdraw the silver the patient gets well and whether it is allergy or a chemical irritation that is being overdone of course is a question for research.

In regard to the blennorrhea in the new-born which is not gonorrheal in origin, a facetious remark was published by Redding in his paper to which I referred,

in which he said that private patients have nonspecific infections of the conjunctiva; that it is only clinic cases that have real GC.

I have never carried out any experiments as Dr. Curran has done, with stains of the cornea or conjunctiva to the point that abrasions were produced by the use of silver. I think that is a piece of research that he should go ahead with and publish. The case he reported of purulent conjunctivitis after cesarean section, I would also be interested in knowing what the eventual studies of that case bring forth.

Dr. Green mentioned that certain maternity hospitals do not use silver nitrate to any extent. If the treatment of the eyes of the new-born could be left to the skilled obstetrician, who undoubtedly has had a tremendous experience along this line, or to a painstaking ophthalmologist, I think it would be permissible to discontinue the routine prophylactic use of silver nitrate. But we all know that the majority of babies are brought into the world by family physicians and they do not have this tremendous experience or training in the care that is required in administering the treatment. Because the incidence of gonorrheal ophthalmia or of ophthalmia neonatorum has been so markedly reduced since the Credé prophylaxis came into general use, I do not believe anybody can dispute that it has been a very valuable preventive measure.

In regard to some of the cases that commence showing gonorrheal conjunctival discharge at the end of a week, once in a while of course this is found when smears are made and careful investigation carried out; but as I said, I believe a lot of these cases would not result if the silver nitrate had not produced a low grade chemical irritation of the conjunctiva and a few surviving organisms had been able to get a start. But no matter how they have appeared, they usually respond rather quickly to proper treatment.

The 1-2-3-4 treatment I mentioned is simply my own idea of what these cases need, viz.: the import of treating them on a time schedule. The first thing I insist upon is iced compresses for three minutes; second, immediately following, the first irrigation with simple boric acid solution; third, the instillation of argyrol; and fourth, the application of sterile vaseline or some other mild ointment on the lids. This routine treatment may be followed every two hours, or every hour, or oftener, depending upon the indications.

I would say, in agreement with Dr. Lemoine, that if very much pus accumulates after thirty minutes it should be washed out, and during that part of the treatment, at least, irrigation used every half hour. But I think the treatment is elastic enough to fit almost any case and I have had very satisfactory results.

S. M. Goldhamer, F. H. Bethell, Raphael Isaacs and Cyrus C. Sturgis, Ann Arbor, Mich. (Journal A. M. A., Dec. 1, 1934), present a study of 461 patients, extending over a period of seven years, concerning the occurrence of neurologic and mental manifestations in pernicious anemia and determine the effect of various types of antianemic therapy on them. Clinical evidence of spinal cord changes has been noted in 89.2 per cent of the cases and cerebral symptoms in 64 per cent. Regardless of the type of adequate antianemic therapy, improvement in symptoms of the central nervous system was observed in less than 50 per cent of the cases and improvement in signs in about 2 per cent. Antianemic therapy, when given in sufficient amounts, does not have a specific curative effect on spinal cord degeneration but contributes only indirectly to the improvement of the manifestations of the central nervous system.

A YEAST-LIKE FUNGOUS INFECTION OF THE CONJUNCTIVA

REPORT OF A CASE

AVERY A. DRAKE, M.D.

ROLLA, MO.

CASE REPORT

N. R., a well nourished girl aged 12 was referred to me on October 21, 1933, with an infection of the conjunctiva of the right eye of two or three days' duration.

When first seen there was a mild inflammation of the tarsal conjunctiva of the right eye with considerable chemosis around the lower half of the cornea; no visible abnormal secretion of the eye and while tearing was perhaps increased above the normal it was not at all marked. Subjectively, there was only a slight photophobia. Smears from the conjunctiva showed practically no organisms and no pus cells. Diphtheria was present in the home of the patient so cultures were made on two occasions even though the eye condition showed no clinical signs of a diphtheritic conjunctivitis. The cultures were negative.

Three days later a small grayish white area began to develop near the inner canthus and chemosis increased until it completely surrounded the cornea. This grayish white area was just underneath the bulbar conjunctiva and about 5 mm. from the caruncle. It gave the appearance of a collection of pus, so much so that it was incised on two different occasions but no pus was obtained. This area was slightly elevated as though being pushed forward by something underneath.

Various types of therapy were being used but without influence upon the condition. A blood sample was sent to the National Hygienic Laboratory for tularemia tests; the report was negative.

On November 2, twelve days later, the right preauricular gland became tender and started to swell and by November 7 many cervical glands on the right side had become similarly involved so that the patient gave the appearance of having a very severe case of one-sided mumps. The area involved was extremely tender to the lightest touch. More of the grayish white areas were developing under the lower half of the bulbar conjunctiva extending from the inner canthus almost to the outer canthus. All these new areas were smaller in size than the original one. None ulcerated at any time.

The patient was beginning to feel rather badly, having some temperature and generalized aching. She was admitted to the Rolla Hospital on November 7.

On November 5, 6, and 7, some of the tissue overlying and including the white areas was studied by Dr. C. E. Rice, United States Public Health Service, with the idea that the infection might be a fungus. The tissue was secured after cocaine anesthesia by picking up the desired conjunctiva with iris forceps and snipping off the portions with iris scissors. These specimens were mounted in sterile 20 per cent potassium hydroxide and a thin cover glass placed over them. The cover glass was sealed with melted vaseline, using a chalazion curette for applying it. At the end of four hours highly refractile globular bodies were seen ranging from 2 to 5 microns in size. Many of these bodies showed distinct budding. In such alkaline preparations the bodies increased in size and number. No mycelium was seen in material from the tissues. Some of these specimens

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were macerated in sterile 20 per cent potassium hydroxide for two hours, and then cultures made direct from the alkaline solution on to Sabouraud dextrose agar; but no growth of any kind occurred. Plain 1 per cent dextrose broth was also cultured from the macerating alkaline solution; but no growth occurred.

On November 22, 23 and 25, pus from the softened preauricular gland was secured under aseptic conditions and the same bodies found as in the conjunctival lesion.

These bodies as they came from the tissues ranged from 2 to 5 microns in diameter; but after incubating at 30 degrees Centigrade in either the strong alkaline solution or in the pus they would increase considerably in size. Budding was demonstrated in both the smallest forms fresh from the tissues and in the larger forms that had been incubating for twenty-four hours in 20 per cent potassium hydroxide. No mycelium was discovered on microscopic examination of this pus.

The staining reactions of the globular bodies were not constant. The smaller forms were rather consistently gram positive. Those bodies ranging from 5 to 12 microns in diameter showed a capsule that was gram negative, and a central portion that was gram positive. The bodies took all stains very intensely.

The cultures from the glandular pus were negative for bacterial growth on Sabouraud's dextrose agar, plain agar and blood agar. In fact, no growth of any kind occurred in these culture media even after several weeks' incubation at 30 degrees Centigrade. In Sabouraud's dextrose broth (dextrose 1 per cent, peptone 1 per cent), there was a very slow growth at the bottom. So far, the only noticeable method of reproduction has been by budding. The globular bodies from the cultures are doubly refractile. No mycelium has been observed in these cultures.

Growth of this fungus has been so sluggish that definite identification has been impossible. One can say that it is a yeast-like, budding fungus probably of genus *Blastomycosis*.

A 1 per cent solution of potassium iodide was used in the eye. Saturated solution of potassium iodide given by mouth starting with 4 drops three times per day, and fifteen and one half grains of sodium iodide intravenously each day. The response to the therapy was quite rapid, improvement being noted within two or three days. The chemosis began to decrease; the extreme tenderness over the highly inflamed and swollen cervical glands to decrease in intensity; and the patient began to feel better generally. She was improving so rapidly that ten days after admission to the hospital she was discharged. At this time the chemosis was largely gone, the grayish white lesions were disappearing and the swollen glands considerably decreased in size.

On November 19, the next day after leaving the hospital, the preauricular gland was noticed to be beginning to soften, and on November 22 the gland was aspirated, 2 cc. of pus being drawn off. Three cc. of sodium iodide solution, containing 31 grains to 10 cc. of solution, was injected into the gland. The following day 3 cc. of pus was aspirated, and 4 cc. of sodium iodide injected. Two days later the gland was again aspirated and 2 cc. of pus obtained. It was not necessary to aspirate again.

Intravenous sodium iodide was given daily up to and including November 29, and was given eleven times during December, the last treatment being on December 27. The patient was told to continue the potassium iodide by mouth for a while longer.

The last time I examined the patient, the eye had a normal appearance in every respect. There were four or five cervical glands moderately enlarged but

without any tenderness. The preauricular gland was not palpable; but there was a sense of hardness over the area as if it were filled in with scar tissue.

This case presents a very unusual type of conjunctival infection the diagnosis of which was quite difficult to make. Almost every other possible diagnosis was considered; but none of them seemed to fit the picture, and certainly none of the various types of therapy applied had the slightest influence on the infection. The absence of subjective signs was noteworthy up until the glands became involved. Then fever became manifest, the highest being 103.2 Fahrenheit, with a general feeling of malaise and discomfort. It was only during the first few days in the hospital that the patient was content to remain in bed all the time. Her appetite was good at all times.

A blood picture was not made until after the height of the infection had been passed and at that time, hemoglobin was 70 per cent; red blood cells 4,550,000; white blood cells 14,750, polymorphonuclears 71.4 per cent, lymphocytes 26.1 per cent, endotheliocytes .4 per cent, and eosinophils 1.9 per cent. Urine negative.

Fuchs in his textbook says, "Polypoid nodules in the tarsal or retrotarsal conjunctiva attended with slight catarrhal conjunctivitis are occasionally produced by an organism apparently a *Blastomyces*."

De Schweinitz mentions blastomycosis of the eyelids and says, "Although the conjunctiva may be injected, swollen, and granular, it is not involved further in the pathologic process."

Concerning sporotrichosis conjunctivae, Fuchs says, "This rare disease is caused by various species of *Sporotrichum* and produces small, light yellow, soft nodules in the conjunctiva with points of ulceration and



Fig. 1. Affected eye at the height of inflammation showing chemosis, lack of lid involvement and original lesion.

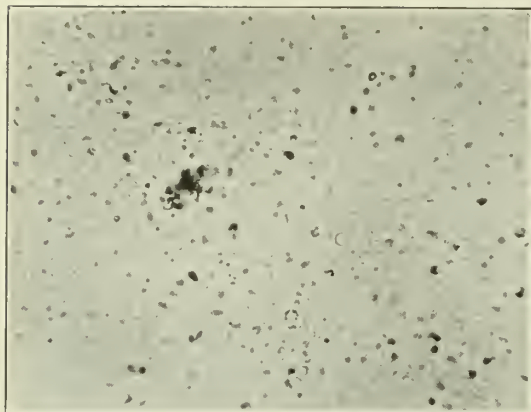


Fig. 2. Material removed from eye lesion and treated for 6 hours in 20 per cent potassium hydroxide. Many of the highly refractile circular bodies are seen.

with purulent discharge. There is swelling of the neighboring lymph glands. Nodules also occur in the lid margins. The canaliculi may contain concretions enclosing the sporotrichon. The disease resembles Parinaud's conjunctivitis, from which it can be differentiated by the discovery of the Sporotrichum."

Parinaud's conjunctivitis: "In this disease, which develops acutely with fever and other evidences of constitutional disturbance, reddish or yellowish granulations form in the highly inflamed conjunctiva and these not only in the retrotarsal folds but also in the conjunctiva of the lids and even in the conjunctiva of the eyeball. The granulations sometimes grow so as to form quite large swellings; in many cases also there are very small, superficial gray coated ulcers in the conjunctiva. A characteristic sign of the disease is the swelling which affects the preauricular lymph gland and indeed the

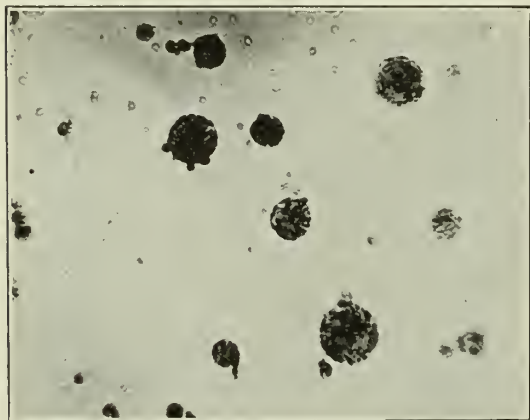


Fig. 3. Material from eye lesion treated by 20 per cent potassium hydroxide for 24 hours and stained with methylene blue. Budding can be seen and in some of the large forms a capsule can be made out.

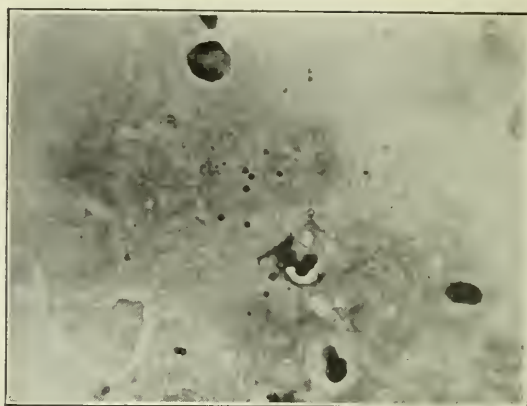


Fig. 4. Slide made from pus obtained from the preauricular gland stained with carbolfuchsin, showing group of bodies about 2 microns in size which are intensely stained and are apparently buds. These bodies are not acid-fast as they decolorize with acid alcohol and take methylene blue.

whole parotid region, sometimes even down to the neck. The swollen glands not infrequently suppurate."

Jacobson in his book "Fungous Diseases" says, "The systemic forms of coccidioidal granuloma and blastomycosis resemble each other so closely that a differential diagnosis is only possible by laboratory methods, which should include microscopic and cultural study of the organisms and animal inoculation. The *Coccidioides immitis* organisms reproduce by endosporulation while the *Blastomyces* multiply by budding (in the tissues and in the pus).

"The lesions in cutaneous blastomycosis are slower in evolution than are the cutaneous lesions in Coccidioidal granuloma; scrofulodermic and elastic tumor-like lesions frequently present in coccidioidal disease have not been observed in cutaneous blastomycosis; glandular involvement is frequently present in coccidioidal granuloma and usually absent in blastomycosis.

"The lesions in sporotrichosis are usually more sluggish, and microscopically, there is an absence of yeast-like fungi; but culturally, there is a characteristic sporotrichum growth.

"The response to therapeutic doses of iodides is usually rapid and certain in sporotrichosis, while coccidioides is ordinarily not affected by it."

I wish to acknowledge my gratitude to Dr. C. E. Rice for his conduct of the fungous work, his interest in the case, and his assistance in the preparation of this paper.

Rolla Hospital.

DISCUSSION

DR. JOHN GREEN, St. Louis: Dr. Drake was kind enough to show me his patient on one occasion when I

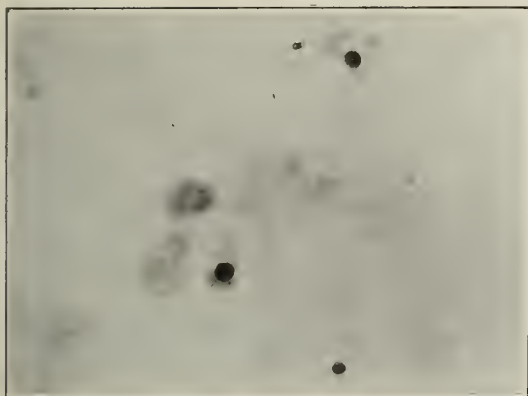


Fig. 5. Slide made from glandular pus, stained with carbolfuchsin, decolorized and stained with methylene blue. Bodies are from 3 to 6 microns in size and are doubly refractile.



Fig. 6. Slide of pus which has been incubated 24 hours stained with Gram's stain. Capsule of larger bodies is gram-negative and bodies are gram-positive.

visited Rolla. At this time the infection had passed its height. The conjunctiva had flattened out and the eye seemed to be on the road to recovery. It was at this time that Dr. Drake aspirated material from the broken down preauricular gland and injected the sodium iodide solution.

The case, when first seen by Dr. Drake, might have been diagnosed Parinaud's conjunctivitis, but the location of the single lesion was in the bulbar conjunctiva, whereas in Parinaud's the lesions are mostly in the palpebral conjunctiva, and are multiple. Furthermore, the preauricular gland softened, which hardly ever occurs in Parinaud's conjunctivitis.

It would be interesting to determine the source of infection. Dr. Drake's inquiries merely elicited the fact that there were some cases of diphtheria in the child's family, but there seemed no good reason to believe there was any causal relation.

The careful study of the case and its working up illustrates the value of a search for all possible etiologic factors thus leading to correct and efficient therapy.

Dr. Drake is to be congratulated on a very satisfactory result.

DR. W. P. WHERRY, Omaha: I do not profess to be a dermatologist, but I was in Ann Arbor two weeks ago and Dr. Udo Wile showed me a case of Torula. Only three cases have been reported so far as I know in the literature. It comes from the genus *Blastomycosis*. The first case they had came from Nevada, where the granulomas all come from, and it was diagnosed as such, but in that condition there is difficulty in finding refractile bodies, while in torula there are plenty. As I saw this slide of Dr. Drake's it conveyed to me much the same picture as I saw in Ann Arbor under the microscope two weeks ago. The cases so far on record show that in Torula there are no skin lesions, but Dr. Wile showed me in Ann Arbor a case about which he is very enthusiastic in which they have skin lesions and mucous membrane lesions in the mouth. I was impressed as I heard this splendid paper with the similarity of what was shown on the screen to this case in Ann Arbor, and I think if Dr. Drake would look up Torula he might find something beneficial. So far as I know there are only three cases in the literature. Dr. Weidman of Philadelphia and Dr. Wile have reported the cases in this country. They might have something to help you.

DR. A. N. LEMOINE, Kansas City: I would like to ask Dr. Drake if he got some of these organisms in the conjunctival secretions? I have seen refractile bodies identical to those he has shown us in the conjunctival

secretions and have never been able to classify them or even convince myself that they were organisms.

DR. AVERY A. DRAKE, closing: I might say that some time ago cultures from the eye and from the preauricular pus were taken to Dr. Fleisher of St. Louis, but for some reason we have had no report on them as yet, I think largely because one of his men has been laid up for several months. However, if anybody wants to study this we have some cultures of the glandular pus.

I would like to ask Dr. Wherry about the outcome of these cases of Torula.

DR. W. P. WHERRY: The two cases Dr. Weidman reported, after a slow and gradual course, finally died of torular meningitis. The first case Dr. Wile had pursued the same course; it was in and out of the hospital for four years, and then finally died. The present case has been in the hospital for something over a year, but they had not diagnosed it until Dr. Weidman went over the blood with Dr. Wile and said it was Torula.

DR. AVERY A. DRAKE: This girl has been quite well since. In her later days of convalescence she did have a peritonsillar abscess, but we did not think it had anything to do with this.

Answering Dr. Lemoine, this material was all sub-

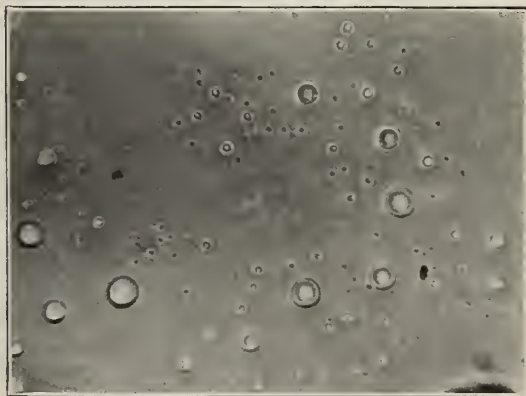


Fig. 7. Slide made from 3 month old glucose broth culture of glandular pus. Material was placed in 10 per cent potassium hydroxide and picture made 6 hours later. The bodies are from 2 to 10 microns in size and are doubly refractile. No budding is apparent in the illustration but is in other portions of the slide.

conjunctival; we got no material from the surface. All of the cultures were made on agar plates.

DR. A. N. LEMOINE: We had one case before Dr. Lichtenberg died, and it looked very much like this under the microscope. We examined it stained and unstained.

DR. JOHN GREEN: Was there any swelling of the preauricular gland?

DR. A. N. LEMOINE: Yes, there was. But the case got well and we did not proceed further. We thought it was a form of yeast at the time and let it go at that.

DR. AVERY A. DRAKE: I am making no attempt to say what species it is, but I think it looks like a *Blastomycosis*.

DR. JOHN GREEN: Let us hope that Dr. Wherry's gloomy prognosis is not carried out. I really believe this girl is well for keeps.

DIAGNOSIS AND TREATMENT OF PERINEPHRITIC ABSCESS

JAMES R. MCVAY, M.D.

KANSAS CITY, MO.

Centuries have passed since Hippocrates recognized and described the symptoms and treatment of the condition known as perinephritic abscess, but this condition still offers many diagnostic difficulties. The frequently obscure symptoms and insidious onset has led to a general agreement with Braasch's repeated statement that "there is no condition in the field of urology which can be more difficult to diagnose than perinephritic abscess," while Lane of Dublin stated that "perinephritic suppuration in a previously healthy individual is not common enough for any surgeon to have a preponderating experience in its diagnosis, and it is doubtful whether any abscess or pus from any situation in such phenomenal amounts can elude detection so long without seriously jeopardizing life."

In 1879 Rayer classified the disease into primary, when originating in the perinephritic space and into secondary, when extending into the perinephritic space from a previously diseased kidney. Most observers at this time agree with Hunt that probably all perinephritic abscesses originate in the kidney, yet in many at time of operation the point of origin can be no longer identified, hence they are called primary or metastatic perinephritic abscesses. It is this type of abscess I desire to discuss.

Brun and Rhodes in a careful study of the circulation of the kidney and the perirenal space conclude that oftentimes the condition results from the stagnation of clumps of bacteria in the end arteries near the kidney capsule and contrast perinephritic abscesses

which usually occur in adults with osteomyelitis which usually occurs in children and feel that the reason children do not so readily develop perirenal suppuration is because the perirenal fat is poorly developed in the child. Considerable support to this theory is given by the fact that *staphylococcus aureus*, which has a well recognized clumping tendency is the most frequent causative organism. In addition, Higgins and Hicken report *staphylococcus albus*, *streptococcus*, *gonococcus*, *pneumococcus*, *bacillus tuberculosis*, *bacillus typhosis*, *bacillus coli* and *actinomycosis* as the infecting organisms in various cases.

Carbuncles, boils, pimples, paronychia, septic wounds, scabies, patches of eczema, sinus infection, otitis media and acute tonsillitis have all been recorded as being the original foci of infection in various cases reported in the literature.

Primary or metastatic perinephritic abscesses occur most frequently in males of the fourth decade. It is probable that trauma may thus be a factor in its localization as males are more subject to trauma in this region but it would be difficult to presume that trauma alone could be the only etiologic factor. That the condition may also be found in the young is shown by Autell's interesting report of three cases, two in children aged ten, and one in an eleven year old child, in which the diagnosis was greatly delayed.

Joyce records the symptoms as beginning with a sudden acute pain in the side and upper abdomen and loin which soon gives way to a continuous boring ache in the subcostal region and loin. Chills, fever, malaise, nausea and vomiting may be frequent early symptoms in the classical picture. Urinary symptoms are mild or notably absent. Physical examination reveals tenderness over the kidney and particularly over the costovertebral angle on the affected side. The abdomen may be distended but muscle spasm is not found except in the back muscles over the abscess area. Respiratory movements of the lower chest may be painful and therefore restricted. The thigh on the affected side may be held in a flexed position to relieve tension on the *psaos* muscle. There may be a tender swelling on the side of the abscess or an indefinite fullness only discernible by measuring the semicircumference from the spine to the umbilicus on each side. Intermittent fever of the septic type is the rule. Urinary findings in the early part of the disease are usually negative while later pus cells, red blood cells and bacteria may be found. A polymorphonuclear leuko-

cytosis, with a total white cell count of from twenty to thirty thousand is recorded in most cases.

In my opinion the most important diagnostic aid is offered by the roentgen ray. The principal roentgenographic findings were first described by Alexander in 1912. He noted the disappearance of the shadow of the psoas muscle on the affected side, the obscuring of the shadows of the transverse processes of the lumbar vertebrae and the shadows of the lower ribs on the side of the abscess and an enlargement and decrease in definition of the kidney shadow on the affected side, and often a curvature of the lumbar vertebrae away from the abscess. Sometime later Ockerblad, Lipsett and Beer independently observed and reported these findings. Revesz has emphasized and elaborated these original observations of Alexander. Mathe has pointed to an apparent fixation of the kidney shadow which may sometimes be helpful. Pancast and Fussell describe the secondary sign of elevation of the diaphragm on the affected side and Peacock suggested the advantage of a stereo-roentgenogram which may show a lateral and upward displacement of the kidney on the side of the abscess. This same displacement may also be demonstrated by the retrograde pyelogram as will be shown in one of my reported cases. Braasch has demonstrated this same finding by intravenous urography and in addition secures the often striking data of reduced kidney function of the affected side. Rigler and Manson in an excellent critical analysis of the value of the roentgen ray findings point out that frequently these signs do not appear until ten days after the onset of the disease. They further emphasize that some of the signs may be simulated by appendiceal abscess, pyonephrosis, polycystic kidney and psoas abscess. Braasch and his co-workers have made a careful study of the finding of curvature of the lumbar spine and report that it cannot always be relied upon as the curvature may sometimes be away from the side of the abscess, sometimes toward the side of the abscess and sometimes may not be present at all. Joyce advises that the roentgen ray findings may be simulated by a ruptured kidney with effusion of blood into the surrounding tissues. I was unable to verify this observation however as neither myself nor my colleagues had roentgen rayed our cases of ruptured kidney as the diagnosis was made by the clinical history, physical examination, urinary and blood findings, but in the

future I shall attempt to verify this when the opportunity offers.

The differential diagnosis may be extremely difficult because many of the cases do not present the classical picture and roentgen ray findings described above. The onset may be very slow and insidious with very few signs present. Pain may be slight or entirely absent but costovertebral tenderness is usually present. The condition is often missed because it is not thought of. A careful recorded anamnesis is most important for perinephritic abscesses frequently follow boils or carbuncles, which have occurred from one to several months before, have healed and been entirely forgotten until their importance is stressed by the physician. Robertson reports twelve cases and in only three was the diagnosis of perinephritic abscess suggested at the time of admission to the hospital. Acute appendicitis, diverticulitis of the sigmoid, ovarian cyst, generalized peritonitis, calculus of the ureter, intestinal obstruction and acute salpingitis were some of the admission diagnoses. The condition has often been confused with disease of the spine, hip joint disease, influenza, typhoid fever, endocarditis, pulmonary tuberculosis, gallbladder disease and gastric ulcer. Campbell records 80 cases of which 26 were not diagnosed until autopsy was performed. These errors serve to emphasize just how difficult an accurate differential diagnosis may sometimes be.

After a correct diagnosis has been arrived at the treatment is simple and effective, namely; adequate and sufficient drainage. Sometimes a careful search of the perirenal fat fails to reveal a small abscess but even in these cases the pus usually burrows to the operative wound and discharges itself. Cases have been reported where the wrong side has been explored and drained and the pus has burrowed across the midline in front of the spine and discharged through the wound.

When the condition remains undiagnosed for a long time many complications have been reported, such as rupture of the abscess into the pleura, into the peritoneal cavity, into the bowel, or the pus may follow down the ureter and rupture into the bladder or bladder and vagina in the female. Crenshaw's interesting report of two cases of perinephritic abscess following pyonephrosis in which he was able to demonstrate by pyelogram the formation of a nephrobronchial fistula reveals what may also happen in the metastatic type of perinephritic abscess.

The mortality is directly proportionate to the length of time the disease has remained undiagnosed. Higgins and Hicken reporting on the five largest series of cases in the literature found the mortality ranged from 34.6 per cent to 6.2 per cent, the average being 19 per cent.

I desire to report two cases which emphasize many of the diagnostic points here discussed.

REPORT OF CASES

Case 1. White, married male, aged 36, stated that on March 5, 1932, he suddenly began to have a gradual progressing pain in the left side and back and by evening developed chills, fever and malaise. His urine was highly colored and strongly acid. The pain left after three days and the patient was up and about for two days when he had a relapse and was worse than he was at first. He returned to bed with pain and remittent fever, difficulty in urination, vomiting and on March 28, 1932, twenty-five days after the onset, he was admitted to the hospital. During the present illness he had lost between twenty and thirty pounds in weight. Careful questioning brought out the fact that he had had several boils on his neck two months ago.

The physical examination revealed a large well nourished man apparently sick but not acutely so. His blood pressure was 128/88, temperature 99.8 F., pulse 108 per minute and respiration 16 per minute. His tongue was dry and his breath fetid. Examination of the chest was negative. The heart was normal except for the increased rate. The abdomen was flat and there were no masses, scars or distention. There was no muscular spasm or rigidity. Quite definite tenderness was present in the left kidney region and along the region of the left ureter. Tenderness was most marked at the left costovertebral angle. No definite bulging on the left side could be made out. The genitalia were negative.

The urinalysis showed a specific gravity of 1.018, amber colored, acid in reaction, albumin, one on a scale of four, sugar negative, leukocytes one, erythrocytes one, epithelial cells one and granular casts one.

The qualitative examination of the blood showed hemoglobin 72 per cent, erythrocytes 4,660,000 and a leukocytosis of 22,000 of which 84 per cent were polymorphonuclear cells. The chemical examination of the blood showed the nonprotein nitrogen to be 25 mgs. per 100 cc. of blood, the blood chlorides were 478 mgs., and the blood sugar was 143 mgs.

Roentgenographic studies of the kidney, ureter and bladder region revealed the right kidney shadow within normal limits of size, shape, position and configuration. The left kidney showed some widening through the lower pole with slight lateral displacement and an obscured outline along the medial and lower borders. The shadow of the psoas muscle on the left side was completely obscured and there was a perceptible right lateral curvature of the spine. There was no evidence of calcific urinary residues within kidneys, ureters or bladder. Moderate general distention of the colon and the loops of the terminal ileum were present but no indication of acute intestinal obstruction.

Cystoscopic examination revealed a normal bladder mucosa. Both ureteral orifices were normal and F5 roentgen ray ureteral catheters were easily passed to each kidney. The urine from the right kidney showed albumin a trace, leukocytes one, erythrocytes three (this was thought to be traumatic) and bacteria one, while from the left kidney the urine showed no albumin,

leukocytes, or erythrocytes but a few epithelial cells and bacteria.

Intravenous phenolphthalein appeared in ten minutes on the right side but the quantity excreted in fifteen minutes was insufficient for estimation. There was no appearance of the dye from the left side.

A retrograde pyelogram was made after injecting 5 cc. of 12.5 per cent sodium iodide solution into the left kidney and the roentgenogram showed only scant filling of the terminal and major calices but definitely established a lateral displacement of the left kidney and upper ureter.

On the second morning after admission to the hospital, under ether anesthesia, a left kidney incision was made and the abscess cavity was found as soon as the muscles were cut through. About a pint of thick yellow pus gushed out and exploration disclosed a loculated abscess cavity in the perinephritic fat at the lower pole of the kidney. Adequate drainage was instituted and after an uneventful convalescence the patient was discharged from the hospital on the fourteenth day with his wound practically healed. Culture of the pus from the abscess yielded pure staphylococcus aureus.

Case 2. White male, aged 40, was admitted to the hospital September 5, 1932. He stated he had been perfectly well until two weeks ago when he had had a sudden sharp pain in the lower left quadrant of the abdomen and the left loin. The pain did not radiate. It was continuous and constant since the onset and was aggravated by deep breathing, but was also present when he would hold his breath. He had some difficulty in passing his urine and complained of a burning urination. His urine had been highly colored but he had noted no blood. There had been fever but no chills. There was a definite swelling in the left kidney region and tenderness in the costovertebral angle. Careful questioning brought out that he had been treated for what was called malignant carbuncle on his neck in July, which was two months ago.

The blood examination revealed a leukocytosis of 33,000 of which 89 per cent were polymorphonuclear cells.

The roentgen ray showed both kidney shadows obscured. The psoas shadow on the left side was entirely obscured. There was a slight increase in density in the general region of the lower pole of the left kidney. Lateral curvature of the spine was not demonstrable. A large amount of colonic gas was present in the upper left quadrant. The film did not satisfactorily include the diaphragm but the left did not appear to be elevated.

After viewing the roentgen ray and examining the patient I made a diagnosis of perinephritic abscess on the left side so characteristically positive were the history, physical findings and roentgen ray. Under spinal anesthesia a left kidney incision was made. Considerable edema of the skin and muscles was present. There was discoloration of the perirenal fat, in which an abscess the size of a walnut was found, at the lower pole of the kidney. While operating I inquired of my assistant what the urinalysis showed. He replied he did not know. Investigation revealed that I had operated upon the patient without a urinalysis so confident had I been of the diagnosis. While I would not advocate such procedures this experience expresses my personal confidence in the roentgen ray findings in perinephritic abscess.

In conclusion I would like to emphasize that (1) when a patient presents the symptoms of pain in the kidney region, chills, remittent fever, leukocytosis, costovertebral tenderness and roentgen ray findings of loss

of the psoas shadow on one side, decreased definition of the shadows of the transverse processes of the lumbar vertebrae and decreased definition of the kidney shadow, the most probable diagnosis is perinephritic abscess. (2) I believe the most important diagnostic signs in primary or metastatic perinephritic abscess are the positive roentgen ray findings described above.

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THE DIAGNOSIS OF THE CHILDHOOD TYPE OF TUBERCULOSIS

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In 1891 Koch¹ described what is now known as Koch's phenomenon; i. e., when tubercle bacilli were injected into healthy guinea pigs a lesion occurred at the site of injection and in the regional lymph nodes; when bacilli were injected into previously infected guinea pigs a chronic lesion developed at the site of injection and there was no involvement of the regional lymph nodes. This difference in the behavior of experimental animals toward infection is essentially the same as that exhibited by humans.² The childhood type or that form of tuberculosis following the first infection is therefore primarily a disease characterized by a primary focus, single or multiple, and lymphatic metastasis.

In actual practice the chain of events is not always so simple nor the distinction so clear. The sequelae to initial seedings with tubercle bacilli depend on several variables; viz., the virulence and number of the infecting organisms, the portal of entry and the location of glands involved, the natural resistance of the host, etc.³ When some conditions obtain the primary infection proceeds to spread and destroy the host. As a rule the tendency is toward an arrest of the disease and metastasis does not occur further than the lymphatic system. Healing occurs by resolution, encapsulation, calcification and ossification.⁴ Infected humans are similar to the infected animals in that under certain other conditions, when reinfection, endogenous or exogenous, occurs, damaging forms of tuberculosis will develop. We reap a crop of "consumptives" from the primary infected groups.⁵ It has been said that children with tracheobronchial lymph gland tuberculosis are more to be pitied than the

obviously crippled because the visible deformity of the latter calls attention to their disability and relief is given, while the former, ignorant of their infection, go on until it is too late for remedial measures. It seems logical to believe that if we can recognize these potential adult types we can by therapeutic and preventive measures materially decrease the more fatal forms of the disease.

The diagnosis of the first infection type of tuberculosis may be grouped under the following headings: (1) History;⁶ (2) symptoms; (3) physical signs; (4) tuberculin test; (5) roentgen ray evidence; (6) laboratory tests, and (7) exclusion of other diseases.

History.—The history of an opportunity to acquire infection is of great importance. Some clinicians go so far as to say that without such a history diagnosis of tracheobronchial lymph gland tuberculosis should not be made.⁷ This is an exaggeration but it has been clearly shown that the incidence of childhood infection depends on the amount of tuberculosis in the particular community involved.^{8, 9, 10, 11, 12} When there is a great deal of infection in the community there is more general childhood infection and, conversely, where there is less tuberculosis of the adult type there is less childhood infection. A source of infection should at once suggest that the disease may have been transmitted to the contact children. If the diagnosis is made in the child a search must be made for the source. This source may be in the immediate family, friends, servants, teachers, etc. The younger the child the more likely is the contact to be found in the home. It is important to remember that the chronic proliferative types of disease found in old people are often unsuspected and are dangerous foci.¹³ The question of race, color, etc., is of little importance in children except that there is a difference in the amount of infection or exposure. For example, among the Negroes and Mexicans in Kansas City there are more opportunities to acquire infection than there are among the whites.

Symptoms.—The symptoms of the first infection type of tuberculosis are not sufficiently marked to be of diagnostic aid. Eberson¹⁴ and others examined two groups of children, classifying the symptoms of each group. Group 1 consisted of 206 tuberculin reactors and group 2 of 100 nonreactors. The symptoms analyzed were cough, nervousness, lack of appetite, loss of weight or failure to gain, fatigability, night sweats, colds, lassitude and elevation of temperature. One

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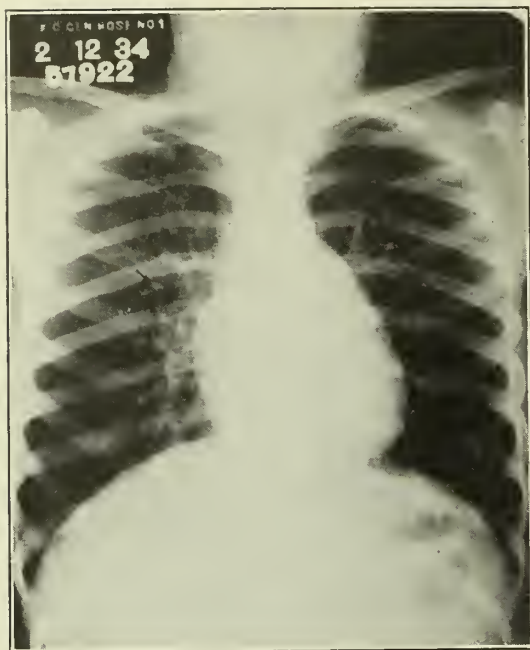


Fig. 1. Girl, aged 7. Contact to grandfather. Series of round densities at outer edges of both hilar shadows are blood vessels caught in an axial plane. Film is diagnosed negative.

hundred and thirty-one or 63.6 per cent of group 1 and 58 or 50 per cent of group 2 had one or more of these symptoms. Thirty-six and four tenths per cent of group 1 and 42 per cent of group 2 were symptomless. Group 1 showed slight increase in three symptoms; i. e., nervousness, loss of weight and failure to gain and fatigability. The non-reactors exhibited more of the other symptoms. I believe that at certain stages of the disease the first infection type produces some symptoms. These symptoms do not differ from those produced by many other diseases of childhood. It is commonly stated that childhood tuberculosis is symptomless. It may be and in many cases is, but a better and clearer statement would be that the symptom group is not diagnostic.

Physical Examination.—Physical signs are likewise of little help. In some cases evidence of tuberculous infection is visible in the form of phlyctenular conjunctivitis or various skin manifestations. There has always been much argument concerning the etiology of erythema nodosum. There is good evidence showing that while it may not always be, this is often either a manifestation of, or found in conjunction with, tuberculous infections. Wallgren¹⁵ found that thirty-seven out of forty cases reacted to tuberculin and demonstrated tubercle bacilli in seventeen of the positive reactors.

Dickey¹⁶ reported that 100 per cent of sixteen cases were tuberculin reactors and thought that in six of them the skin eruption was evidence of high allergy. Tuberculous adenitis or scrofula was at one time a frequent finding.¹⁷ It is still encountered but is much rarer than it was several years ago probably due to lessened bovine infection.¹⁸ Generalized nontuberculous adenopathies are of frequent occurrence in children. Tuberculous glands are often unilateral, tend to mat together and ultimately to break down and produce a discharging sinus. When scrofula is diagnosed there is usually mediastinal involvement and in older children parenchymal disease may be present. Pleurisy with effusion is almost always tuberculous.

The usual methods of inspection, palpation, percussion and auscultation of the chest are of little value except to differentiate other conditions. The D'Espine sign is worthless. Because of the value of these routine methods in differential diagnosis they should always be used in individual cases. In dealing with large groups where one is concerned only with the finding of the tuberculous cases examination may be done only on the tuberculin reactors and little will be found there.

Tuberculin Reaction.—The tuberculin reaction is the most efficient method we

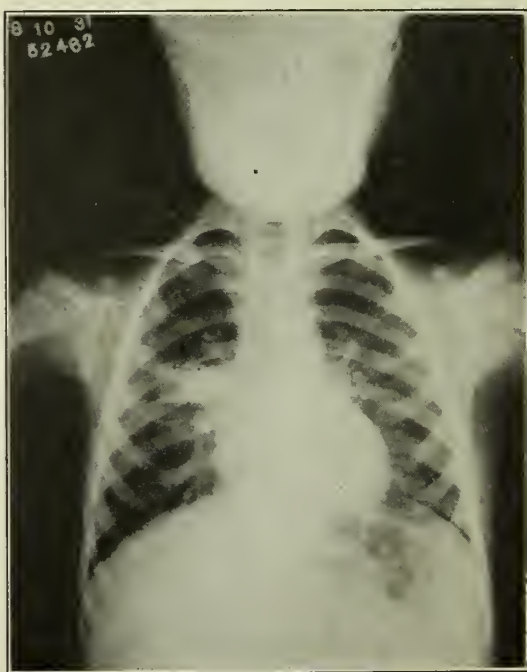


Fig. 2. Aged 5. Contact to uncle. Exudate lesion in the parenchyma. Diagnosis, primary lesion, first infection type.

possess in detecting tuberculous infection. Many modifications of the three main methods of testing, subcutaneous, intracutaneous and cutaneous, have been suggested and used. No matter how performed, the object is to get tuberculin into contact with the deeper layers of the skin and the efficiency of the test depends on how well this is done.

The preparation of choice at present is Koch's old tuberculin. The active principle is the protein fraction.¹⁹ It is not entirely satisfactory and an attempt is being made to improve it. Various protein fractions have been isolated and some have been tested. M-A²⁰ 100 seemed promising; it gave satisfactory reactions and was stable for one year.²¹ Aronsen and Nicholas²² report that in smaller doses M-A 100 and OT agree but in larger doses OT gives more reactions, and also in repeated doses M-A 100 gives rise to sensitization phenomena (Arthus's reaction). Seibert²³ has isolated a protein fraction of smaller molecular weight which is apparently stable and does not produce sensitization.

The method most widely used is the intracutaneous or Mantoux test. A tuberculin syringe and a 27 gauge needle is required. The needle is inserted so that the bevel can be seen through the skin layer. One tenth of a cc. of material is then injected.



Fig. 3. Almost 2 years after figure 2. Parenchymal lesion, smaller and denser and calcium being deposited. Healing is occurring by resolution and encapsulation.



Fig. 4. Aged 4. Contact to mother. Indistinct widening of mediastinal shadow. Large masses protruding into parenchyma. Normally these glands are not visible on films. Diagnosis, tuberculosis.

The standard for initial testing is the 1:10,000 or 1/100 mg. per .1 cc. Weaker dilutions are used in some cases. Succeeding doses may be 1:1000 or 1/10 mg., 1:100 or 1 mg. and 1:10 or 10 mg. Some men use the 1/10 mg. dose as the initial test and some use two or three different strengths of solution at one time. This is safe if the strongest dilution used does not exceed 1/10 mg. It is not necessary to use controls. The reaction reaches its maximum in about 48 hours and should be read at that time. The reading is recorded in terms of 1, 2, 3 or 4 plus. A 1 plus measures $\frac{1}{2}$ to $1\frac{1}{2}$ cm.; a 2 plus $1\frac{1}{2}$ to $2\frac{1}{2}$ cm.; a 3 plus, over $2\frac{1}{2}$ cm. without necrosis, and a 4 plus, blister or necrosis in the center. Sometimes the reaction is delayed for several days but this is rare. There is usually a raised edematous area with a wider lighter pink or reddish areola surrounding it. Sometimes pink streaks extend up the arm following the lymph channels and the axillary lymph nodes are tender. Some patients experience constitutional symptoms such as elevation of temperature, malaise, etc., and sometimes skin manifestations such as erythema nodosum appear. The site of injection may be tender or sore for several days. The reaction deepens in color and then gradually fades.

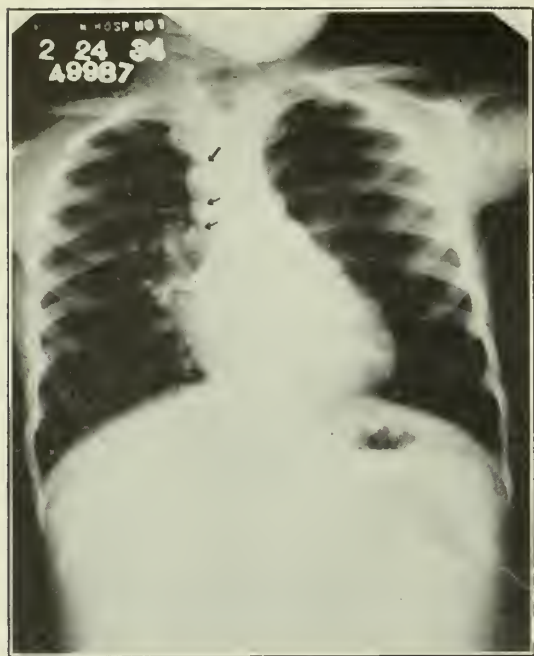


Fig. 5. Four years after figure 4. The glands are discrete and heavily calcified. Ghon tubercles are visible in the upper right and lower right. Figure 4 shows Ghon tubercles were present in 1930 but were not distinct.

As a qualitative test a positive reaction means that tubercle tissue exists in the body. Whether or not it means that viable bacilli exist is still debated. Schroder and Park²⁴ have reported that individuals who have formed tubercle tissue following injection of dead bacilli reacted to tuberculin two years after injection. The duration of life of encapsulated bacilli in the body is not known. Viable bacilli have been found in lymph nodes of adults dying from other causes.⁴ We have found adults with calcified foci who do not react to milligram doses of tuberculin. It is assumed that in many cases when the bacilli die the tuberculin reaction becomes negative. In children it is safest to assume that with a positive reaction viable bacilli are present.

A negative reaction to a 1 mg. dose is good evidence that infection has not occurred and almost positive evidence that active disease is not present. There is a period estimated as from two weeks to three months²⁵ following infection during which the tuberculin reaction is negative. In cases of far advanced disease sensitivity is lost. In measles and some of the other acute infections "allergy seems depressed. It has been suggested that the decreased sensitivity in cachectic states is due to lessened circulation in the skin and subcutaneous tissue.²⁶ Hart²⁵

tested a group of patients with manifest clinical tuberculosis. These had all types and stages of the disease. In the group aged 10 and under his results were as follow:

| Dilutions | Cases in Series | Cases Tested | Cases Negative | Per Cent Negative | Per Cent Positive |
|-----------|-----------------|--------------|----------------|-------------------|-------------------|
| 1-10,000 | 389 | 374 | 48 | 12.8 | 87.2 |
| 1-1000 | 389 | 389 | 18 | 4.5 | 95.5 |
| 1-100 | 389 | 18 | 14 | 3.5 | 96.5 |
| 1-10 | 389 | 14 | 14 | 3.5 | 96.5 |
| 1-1 | 389 | 14 | 13 | 3.3 | 96.7 |

This chart shows that the 1-10,000 or .01 mg. dose will miss approximately one eighth of clinical cases. It also shows that there is little advantage in using dosage above 1-100 or 1 mg. dose, and that if one dose only can be given the .1 mg. is the better strength to use. We have just finished testing a group of 108 girls in an institution. The ages ranged from 5 to 16, most of them being 7 to 12 inclusive. Thirty or 26.8 per cent reacted to 1-10,000 or .01 mg., and five or 46 per cent to 1-1000 or .1 mg. Many times one is not sure whether a reaction is slightly positive or is negative. In our series this doubt occurred twelve times. Repeating with the larger doses gave negative results in eleven out of twelve. It is rather difficult to assess comparative values between the von Pirquet or scratch test and the Mantoux test²⁷ but it is generally agreed that the Pirquet is much inferior.^{28, 9} The per cent²⁵ of error of the Pirquet is about the same as the 1/100 mg.

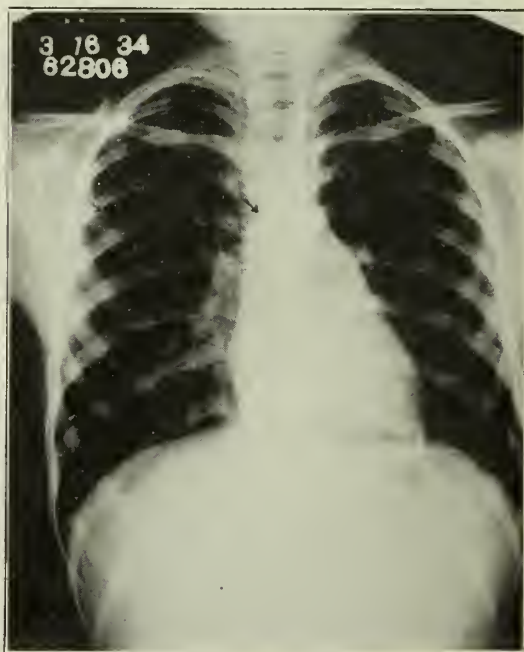


Fig. 6. Aged 9. Contact to mother. Ghon tubercles visible in second intercostal space right. Calcium deposits in right hilus and small dense nodules along trachea.

Mantoux.^{9, 25} As a test for type of infection the skin reaction is of no value. Apparently there is a protein common to all the types, bovine, human, avian, etc., which will produce similar reactions.²¹

As a quantitative test the Mantoux may be of some value but it is not exact.²⁵ McPhedran²⁹ has stated that a reaction to .01 mg. of OT in the absence of other signs in a child under five years of age is sufficient evidence to initiate therapeutic measures. The presence of demonstrable lesions should make treatment more necessary.

There are two ways of using the Mantoux as a quantitative reaction. One method is to use a series of different dilutions. The other is to use a single dilution and measure the size of the reaction. In a study of 700 reactions Dickey³⁰ used .1 mg. doses and measured the size. Children with phlyctenular conjunctivitis, lymph node and bone tuberculosis had an average higher than those with hilar disease and the latter had an average size greater than those with adult types of disease. There was a gradual increase in size of reaction from infancy reaching a maximum at age six. Contacts had larger reactions than noncontacts. Blair and Galland³¹ used weak dilutions ranging down to 1/100,000 mg. They had no children under the age of eight reacting to 1/100 mg. that did not react to lesser dilutions. Johnston et al³²



Fig. 7. Direct right lateral reveals many calcified tracheal and paratracheal glands. The direct lateral exposure is the best method of studying structures behind the heart.



Fig. 8. Aged 69. Diagnosis healed childhood type tuberculosis. Chronic passive congestion. Cardiac diagnosis, myocardial degeneration making first diagnosis wrong. Whether the active infection was endogenous or exogenous is a speculation.

studied 500 clinic and 213 hospital patients. They used doses as small as 1/100,000,000 mg. and took as the threshold the smallest amount giving a reaction. Roentgen studies and blood counts were made at the same time. They observed a gradual rise in sensitivity to a period of what they interpreted as maximum lymph node enlargement, a maintenance of a high plateau at this point and then a gradual fall. In six years no patients became completely insensitive but thirteen became negative to milligram doses.

All this work is in too much of an experimental stage to warrant any conclusions. In using weak dilutions it must be remembered that they deteriorate rapidly and should be made up each day. Stuart Pritchard sounded a word of caution when he said "if we did not check some of our enthusiasm we would soon be making diagnoses in terms of milligrams."

The tuberculin reaction serves to denote the presence of infection. We may get some idea of activity from the size of the reactions or dosages, but we know we cannot rely on this alone. We also know that most of these infected children will probably never have clinical disease.

The roentgen ray examination serves to

pick out those who have actual parenchymal disease and reveal primary foci and tracheo-bronchial lymph node disease. Using serial films the processes of healing can be observed and only by the use of roentgen ray can we detect the early manifestations of adult types of spreads. The roentgen ray is therefore invaluable: without it, we would be in the dark much of the time; with it, we can only find actual evidence of disease in a small per cent of the tuberculin reactors. For example, in the survey of 1000 cases in New York City⁸ 184 had lesions demonstrable by roentgen ray 113 of which were regarded as clinically important.

The technic of the examination is important. The fluoroscopic examination may be of value but must not be depended upon for a diagnosis and of course does not produce fixed records. McPhedran³³ uses and advocates a method in which exposures are synchronized with the heart cycles. Such refinements are out of reach of most of us. We should try to secure films of the same density. At times it is advisable to vary this density seeking "soft" or "hard" films. In addition to the usual A. P. exposures, right or left obliques and direct lateral views will reveal areas which are obscured by the heart and mediastinal shadows in the standard A. P. views.

The interpretation of the shadows is not easy. No definite rules can be outlined for this procedure. The committee appointed by the National Tuberculosis Association to study the normal chest reported: "The normal chest from a radiographic standpoint is subject to such wide variations within normal limits as to be beyond possibility of exact description."

Certain anatomical and pathological facts are an aid. The lymph drainage of the lung is toward the hilum except for a small area near the pleura which drains to the pleura and then to the hilum through the interlobar surfaces. Each lobe has its lymph nodes which in turn drain into other chains of nodes which are situated at the tracheal bifurcation and extend up and down the mediastinum. These latter chains communicate with each other. A calcified gland usually means the primary lesion exists in the area draining into this gland.³⁴ Calcium is sometimes formed quickly, at other times it may be slow in deposition. It presents a granular, irregular, sometimes laminated appearance.

Linear shadows as usually interpreted are shadows of blood vessels. In flat films many vessels are caught in an axial plane and cast round or rounded dense shadows ranging

from rather large ones in the hilum down to small beads out in the parenchyma. These shadows are commonly wrongly diagnosed as calcium deposits. Lymph glands cannot be seen unless they contain calcium or are large enough to infringe on the parenchyma.³⁵

The interpretation of films should be made by a roentgenologist and clinician working together. All the available data should be known to both and a final diagnosis made by correlating the known facts. In many cases only a provisional diagnosis can be made. Films made at a later date may confirm or deny earlier diagnosis.

The diagnosis is made principally by the history of infection, tuberculin reaction and roentgen-rays. Of these three the roentgen ray has so far given the main method of classification.³⁷ Cases are classified into four groups: (A) Tuberculin reactors with no evidence of infection by roentgen ray; (B) tuberculin reactors with demonstrable intrathoracic lymph nodes; (C) tuberculin reactors with Ghon tubercles and calcified hilum glands, and (D) tuberculin reactors with resolving parenchymal lesions.

Class A comprises about 50 per cent, class B from 25 to 30 per cent, class C from 15 to 20 per cent and class D from 3 to 5 per cent of the total. In our recent series of thirty-five reactors, twenty-two were in class A, five in class B, seven in class C and one in class D.

Such a classification is obviously not satisfactory. In many cases when the disease is probably active there may be no parenchymal shadows and no calcium deposits. When serial films are made we frequently find that in time calcification appears. The official classification is a combination of these four groups with clinical symptomatology attempting to separate groups for treatment. Personally I do not think any classification we now have is adequate. I believe that laboratory aids offer some help in classification.

Laboratory Aids.—The demonstration of tubercle bacilli makes a positive diagnosis of active disease. The most satisfactory method in children is gastric lavage. The stomach is washed with normal saline solution and the washings centrifuged. The sediment is then examined by direct smear, culture or animal inoculation. In children under 3 years the chances of finding bacilli are reported to be good.³⁸ Even in older children, who give little or no evidence of active disease bacilli have been found.^{39, 40, 41}

The search for the bacillus in the child-

hood type has not been generally adopted. It requires considerable work and time but it should be used whenever possible. It will allow a further classification of patients and more correct treatment. I am certain that we are now allowing open cases of tuberculosis to remain in contact with other children. Further study will diminish these mistakes. Recent reports have further emphasized the importance of this search.^{42, 43}

In recent years changes in the blood have been studied. There are three main groups; i. e., sedimentation of the erythrocytes; the number and ratios of polymorphonuclear leukocytes, lymphocytes and monocytes; and various precipitin tests with and without tuberculin reactions. Subcutaneous injection of tuberculin produces temporarily a typical blood picture of active tuberculosis if infection is present.⁴⁴

All these methods have been used in childhood tuberculosis.^{45, 46, 47, 48, 49, 50} They are unquestionably aids but cannot be relied upon. The diagnosis must be made independently of these blood changes. When a diagnosis is established and other conditions are excluded it is a help to know what changes have occurred in the blood and these tests are of value in prognosis.

Most of the laboratory work is time consuming, requires considerable technical skill, and until short cuts appear will not be used in general practice.

Exclusion of Other Diseases.—We have already discussed some of the problems of differential diagnosis. Tuberculosis may simulate or be simulated by most of the various infections and diseases peculiar to children. In the more chronic ones those most likely to be confused are upper respiratory infections, resolving pneumonias, bronchiectasis and chronic bronchitis and rheumatic heart disease. Recently we had difficulty with a case of Malta fever. Since most of these infections can and do occur in tuberculous children it is sometimes difficult to make a correct diagnosis and it may be necessary to observe a child for some time before we can be sure.

The diagnosis of the childhood type of tuberculosis can usually be made. The tuberculin reaction is an accurate test for the presence of the infection. The roentgen ray will usually demonstrate parenchymal or hilar forms of the disease if there has been much infection. When infection is demonstrated the patient must be kept under observation for years. We have no way of telling whether an individual case will later

develop the adult type of disease. Myers⁴⁸ likens these primary foci to bombs with fuses timed for different periods; some two or three years, some ten, some fifty, some maybe one hundred. These cases are liable to dangerous disease if reinfection occurs, endogenous or exogenous. The primary object in diagnosing the childhood types is to attempt to prevent the adult types. Most of these infected children will not develop adult disease but a small percentage of them are sure to do so. If we can diagnose infection as early as possible, make repeated examinations from time to time, exercise what therapeutic knowledge we have, we should be able to further decrease the incidence of this disease.

Medical Arts Building.

BIBLIOGRAPHY

1. Koch, Robert: Deutsche Med. Wehnschr. **27**:101, 1891.
2. Bigler, John A.: Interpretation of Roentgenograms of the Chest of Children Based on Observations at Necropsy, Am. J. Dis. Child. **38**:1166, 1929.
3. Krause, Allen K.: Human Resistance to Tuberculosis at Various Stages of Life, Am. Rev. Tuberc. **11**:303, 1925.
4. Sweany, H. C.: Studies on the Pathogenesis of Primary Tuberculous Infection, Am. Rev. Tuberc. **27**, 1933.
5. Article: It Often Happens, Hygeia **12**:376 (April) 1934.
6. Diagnostic Standards, National Tuberculosis Association, 1931.
7. Armand, Delille P., and Lestocquoy C.: The Diagnosis of Tuberculosis of the Tracheo-Bronchial Glands, Am. J. Dis. Child. **38**:1125, 1929.
8. Barnard, Margaret Witter; Amberson, J. Burns, Jr., and Loew, Marion Franklin: Tuberculosis in Adolescents, Am. Rev. Tuberc. **23**:593, 1931.
9. Pope, Alton S.: The Discovery and Prevention of Tuberculosis in the Community, J. A. M. A. **97**:846 (Sept. 19) 1931.
10. Dickey, Lloyd B., and Seitz, Roland P.: The Incidence of Tuberculous Infection in Children as Based on 3,500 Intracutaneous Tuberculosis Tests, Am. Rev. Tuberc. **23**, 1931.
11. Bridge, Ezra, and Stokes, A. M.: The Dispensary Examination Versus School Examination in Discovering Tuberculosis in Children, Am. Rev. Tuberc. **28**, 1933.
12. Fenger, E.; Mattill, P. M., and Phelan, E.: Tuberculous Infection in School Children, Am. Rev. Tuberc. **21**:183, 1930.
13. Myers, J. A., and Anderson, H. R.: The Significance of Tuberculosis Among the Aged, Am. Rev. Tuberc. **21**:541, 1930.
14. Ebersson, Frederick; Delprat, Jessie P., and Wolff, Ernst: Suspected Juvenile Tuberculosis Evaluation of Symptoms and Signs, Am. J. Dis. Child. **40**:753 (October) 1930.
15. Wallgren, Arvid: Tubercle Bacilli in Children with Erythema Nodosum, Am. J. Dis. Child. **41**:816, 1931.
16. Dickey, Lloyd B.: Erythema Nodosum and Tuberculosis in Children, Am. Rev. Tuberc. **26**:614, 1932.
17. Koch, H.: Pathogenesis of Tuberculosis, Wien. klin. Wehnschr. **43**:117, 1930.
18. Landis, H. R. M.: The Disappearance of Scrofula, Am. Rev. Tuberc. **21**:195, 1930.
19. Seibert, Florence B., and Munday, Betty: Chemical Composition of the Active Principle of Tuberculin, Am. Rev. Tuberc. **23**, 1931.
20. Reichel, John: Further Data on Human Tubercle Bacillus Protein Ma 100, Tr. Nat. Tuberc. Assn. 1933.
21. Fenger, E. P. K.; Mariette, E. S.; Hutchinson, Dorothy W., and Ouellette, A. J.: Further Experience With Ma 100, Tr. Nat. Tuberc. Assn. 1933.
22. Aronsen, Joseph, and Nicholas, Raw V.: The Comparative Value of Tuberculo-Protein Ma 100 and Old Tuberculin With Especial Reference to Sensitization, J. Immunol. **25**, 1933.
23. Seibert, Florence B.: The Relationship Between the Sensitizing Properties of Tuberculo-Protein and Its Molecular Weight, Tr. Nat. Tuberc. Assn. 1933.
24. Schroder, M. C., and Park, William H.: The Development and Duration of the Positive Mantoux Test in Children After an Injection of Either Dead Bacilli or of B. C. G. Vaccine, Tr. Nat. Tuberc. Assn. 1933.
25. Hart, D'Arcy P.: Tuberculin Tests in Man, Med. Research Council, Special Report 164—H. M. S. 1932.

26. Pilcher, J. D.: Diminution in the Circulation of the Skin a Factor in Decreasing the Cutaneous Reaction, *Am. Rev. Tuberc.* **21**, 1930.
27. Aronson, Joseph D.; Zacks, David, and Pontas, J. J.: The Comparative Sensitiveness of the Pirquet and the Intracutaneous Tuberculin Tests, *Am. Rev. Tuberc.* **27**:465, 1933.
28. Smith, Charles Hendel: Tuberculin Skin Reactions, *Am. J. Dis. Child.* **38**:1137, 1929.
29. McPhedran, F. Maurice: The Diagnosis of Tracheo-Bronchial Tuberculosis, *Am. J. Med. Sc.* **173**:245, 1927.
30. Dickey, Lloyd B.: The Size of the Reacting Area in Intracutaneous Tuberculin Tests in Relation to Classification of Disease and to Other Clinical Factors, *Am. J. Dis. Child.* **38**:1155, 1929.
31. Blair, John E., and Galland, Walter I.: Tuberculin Reactions, *Am. Rev. Tuberc.* **23**:1, 1931.
32. Johnston, J. A.; Howard, P. J., and Maroney, John: A Quantitative Study of the Tuberculin Reaction in Childhood Tuberculosis, *Tr. Nat. Tuberc. Assn.* 1933.
33. McPhedran, F. Maurice and Weyl, Charles N.: Clinical and Physiologic Deductions From Synchronized Roentgen Ray Exposures, *Am. J. Med. Sc.* **173** (March) 1927.
34. Blacklock, John S.: Tuberculous Disease in Children, *Med. Research Council, Special Report*, 172, 1932.
35. Bigler, John A.: Interpretation of Roentgenograms of the Chest in Children Based on Observations at Necropsy, *Am. J. Dis. Child.* **38**:978, 1929.
36. Myers, J. A., and Kernkamp, L. M.: Tuberculous Infection in Infancy, *Am. Rev. Tuberc.* **21**:422, 1930.
37. Stewart, Chester A.: The Prognosis and Treatment of Resolving Parenchymal Tuberculosis of First Infection in Infants and Children, *Am. Rev. Tuberc.* **26**, 1932.
38. Poulsen, Valdemar: Pulmonary Tuberculosis in Children, Demonstration of Tubercle Bacilli in Gastric Lavage, *Am. J. Dis. Child.* **41**, 1931.
39. Friedman, A.; Esserman, A. L., and Block, M. H.: Tubercle Bacilli in Sputum of Children Free From Manifest Pulmonary Tuberculosis, *J. Pediat.* **11**:283, 1933.
40. Collins, W. R. F., and Brockington, C. F.: Tuberculosis in Childhood, Its Etiology and Prognosis as Shown by Stomach Lavage Method of Obtaining Tubercle Bacilli, *Lancet* **1**:127, 1933.
41. Nolibaut, J. P.: Tubercle Bacilli in the Sputum and Faeces of Children Without Pulmonary Tuberculosis, *Am. Rev. Tuberc.* **29** (April) 1934.
42. Gousley, Ina: Tubercle Bacilli in Gastric Contents of Children, *Am. Rev. Tuberc.* **29** (April) 1934.
43. Mishulow, Lucy; Kereszturi, Camille, and Hauptman, David: The Demonstration of Tubercle Bacilli in the Sputum, Faeces and Stomach Contents of Tuberculous Children, *Am. Rev. Tuberc.* **29** (April) 1934.
44. Spector, H. I.: Modified Arneith and Schilling Counts, *Am. Rev. Tuberc.* **21**, 1930.
45. Hamil, Brenton, M.: Tuberculosis in Infants and Children: White Blood Cell Counts; Evaluation of Monocyte Lymphocyte Ratio by the Supra Vital Staining Method, *Am. J. Dis. Child.* **41**:1023, 1931.
46. Blockfan, Kenneth D., and Diamond, L. K.: The Monocyte in Active Tuberculosis Supra Vital Studies of the Blood, *Am. J. Dis. Child.* **37**:232, 1928.
47. Reilly, William Anthony: The Behavior of the Monocyte in Tuberculosis in Children, *Am. Rev. Tuberc.* **25**:178, 1932.
48. Finner, Lucy: The Clinical Value of the Monocyte Count in Pulmonary Tuberculosis, *Am. Rev. Tuberc.* **21**:764, 1933.
49. Reilly, William Anthony: The Linzenmeier Blood Sedimentation Time in Tuberculous Children, *Am. Rev. Tuberc.* **29** (February) 1934.
50. Friedman, Eli; Damoshek, William, and Hawes, John B.: The Examination of the Blood as an Aid in the Diagnosis of Hilum Lymph-Node Tuberculosis, *Am. Rev. Tuberc.* **25**, 1932.
51. Myers, J. Arthur: First Infection and Reinfection Types of Tuberculosis, *Am. Rev. Tuberc.* **28**, 1933.

Jacques P. Guequierre and Fred D. Weidman, Philadelphia (*Journal A. M. A.*, Dec. 1, 1934), point out that the objections of the pathologist to the use of coagulating currents can be overcome largely by adhering to the cutting current. The method is not infallible, owing to such factors as muscular twitch, an unsteady hand or an anatomic location such as the face, which limits the removal to a very small specimen. Barring these conditions the readiness of the apparatus, the bloodlessness, the insensitiveness to postoperative pain and the psychologic effect on the patient all contribute to the securing of a greater number of biopsies, which are so sorely needed for the advance of dermatology in general, to say nothing of the assistance that accrues in confirming the diagnosis.

THE TREATMENT OF CHILDHOOD TUBERCULOSIS

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In the discussion of this subject one may be either a pessimist or an optimist and in either case have solid ground on which to stand.

Koch in 1882 demonstrated beyond question the causative agent of tuberculosis to be the tubercle bacillus. Yet in the years intervening no specific agent has been developed to combat the infection.

For many decades past the treatment of tuberculosis has been rest, food, fresh air and sunlight. To this we have added but one factor; namely, isolation.

Turning now to a more optimistic view of the picture we could point out at great length the improvement in technic that has developed in the application of these fundamental principles. We have found that the dose of sunlight and all ultraviolet light must be controlled; that carbohydrates must to a degree give way to proteins in the diet; that valuable as fresh air is, unregulated exposure is highly inadvisable. The greatest advance in technic and its application have taken place in the use of rest. Here we might mention the many improvements in orthopedic apparatus as well as the surgical procedures now commonly practiced on the chest which only recently were thought of as possibilities.

The greatest advance, to my mind, is the education and development of a saner comprehension of the problem in both the profession and the lay public with attending willingness to cooperate in dealing with the various phases.

In considering the treatment of tuberculosis in children we must vary our conception somewhat from that of the adult.

First, we are dealing with the individual in the springtime of life in contrast to the summer or autumn. Growth is rapid, changes are swift and reactions are different than they are later in life.

Second, we must get clearly in mind the differences between the childhood type and the adult type of tuberculosis, remembering that either type may be present in the child although in my experience the incidence of the adult type in children is very small.

Third, we must impress upon ourselves as well as the laity that reinfection of an in-

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fectured child is far more serious than the infection of a child not previously infected. It is much more important to isolate an infected child from further exposure than it was to isolate him before he became infected.

Fourth, we must educate ourselves and the laity to realize the futility of waiting for physical signs of tuberculosis in children; and furthermore, that on the slightest suspicion a skin test and if possible a roentgen ray of the chest are always indicated for in this way only can an early diagnosis be made.

Fifth, we must use utmost patience, be very specific and impose no undue restriction on our children if we are to get their full cooperation. In other words, we must use good psychology or as I prefer to state it "horse sense." It is a constant source of real inspiration to me to find the whole-souled way in which my youngsters work with me.

In a large clinic a certain routine, with the greatest flexibility possible, is essential. In the outpatient tuberculosis clinic at the Children's Mercy Hospital we attempt to carry on in this way.

All children admitted to the wards of the hospital routinely have a Mantoux test. Co-operating with Dr. Hoxie in his open air school work, and Dr. Mantz in his clinic at the General Hospital, we have taken as our standard 1/100 milligram of a fresh dilution of old tuberculin for this purpose. As a matter of my own interest a Mantoux test is done on both forearms simultaneously, using the human tuberculin on the right and bovine tuberculin on the left. In well over four thousand children there have been but five instances where a positive reaction was had to one and not also to the other. The degree of reaction has shown very little difference between the two in practically all cases.

All positive reactors automatically become part of the clinic. These children with those referred by other departments of the outpatient clinic, school nurses, social service workers, visiting nurses and contacts make up the clinic.

All other children in the immediate family and other possible contacts are brought in for a check up.

Every positive reactor routinely has a roentgen ray of the chest. We find it is extremely rare for a child having tuberculosis anywhere in the body without demonstrating it very definitely also in the hilar glands in the chest.

The history is now taken up and reinforced by the addition of such detail as particularly interests us. Especially is an

attempt made to locate both contacts and other children who might have suffered exposure from any known contacts. This sometimes leads us out of the family into one or more other families, not always definitely related.

A general physical examination is now made, as carefully as time will permit. This always includes the height, weight and its relation to the standard, as well as a white blood cell count, red blood cell count, a differential blood cell count, and a hemoglobin, determined by the Hayden method.

When defects such as infected tonsils, teeth, etc., are found we attempt to evaluate their importance. Sometimes we feel that they will retard progress greatly and have them corrected at once. In other cases we feel it wiser to postpone correction to a time when the necessary procedure will affect least the child. In this connection upper respiratory infection I think plays first role. It is, I believe, "public enemy" No. 1 when complicating a tuberculous infection in childhood.

In getting the history we have come to some pretty definite ideas as to home conditions. This is supplemented by information from outside sources and where we deem it necessary by our own social service worker.

On very rare occasions we find a family upon whose cooperation we cannot depend, after a fair trial, and this patient is immediately and permanently discharged from the clinic; we feel that we can do neither the child nor the community any good by expending effort and money on that family.

It is not often that we can achieve the ideal; that is, to completely remove the contact in the group. At the present time we must take the situation as we find it and handle it to the best interests of all concerned. We can and I believe we do accomplish much by instilling the rudiments of careful sanitation even in the humblest and most overcrowded homes.

The discussion of and advice on diet is taken up along with advice on sanitation since it blends itself so well with this subject. In the last two years we often had to take what was available and make the most of it. Our social agencies have done admirably in helping us with foodstuffs and common sense instruction among many of these families.

We come next to the most important thing in our armamentarium; namely, rest. It is not in the province of this paper to take up the Bradford frame, or plaster casts essential to rest of infected joints. We do not find need for the various surgical chest proced-

ures, even for pneumothorax, except in the rare child who has an advanced case of pulmonary tuberculosis of the adult type. Even a pleural effusion is more rare than I formerly thought.

If we are to make any progress, however, we must have rest, both mental and physical, well regulated and on regular schedule. Putting a child to bed does not by any manner of means ascertain that he is resting. I sometimes put a child in bed for a week, sometimes for six weeks. These are cases that I have carefully selected for a special reason; and I never put them to bed without discussing it with the child and convincing him that it is what he wants to do. I am quite sure that real damage may at times be done by confining a child in bed, and in still others where this confinement has been too long. I would usually much prefer to have a happy ambulatory tuberculous child, leading a reasonably sedentary life, than to have the same child fretting in bed or to have him kept in bed, until the normal tone of his skeletal muscles has gone. I would much prefer to have one of these children spend 60 to 90 days at a quiet farmhouse, without strict supervision, than to be confined to bed for this period. Again, I feel it is the poorest kind of psychology to restrict or set apart from his fellows any child, and I never do so except from sheer necessity.

Each of my children is given a definite time to be in bed, lights out, and to rise in the morning. This decision is reached after a consultation with the family. Much as I would like to break the day with a rest period I do not always find this possible. One who has not observed the work of the open air schools cannot appreciate the fine help they are in education and training as well as in actual performance.

I would sum up my ideas on rest for the tuberculous child as follows:

1. Any consistent fever of 99.5 degrees F. or over should mean bed rest.
2. Exhaustion should require a short period of complete bed rest.
3. Bed rest should always be sufficient to prevent definite fatigue, and should never be extended beyond this requirement.

Little need be said of fresh air. I think I will express the opinion of all if I say we want all we can get of it. It must be as pure as possible, free of dust, soot and fumes. We must not, however, let our patients be faddists along this line. Fresh air obtained by undue exposure or exertion may defeat its advantages.

There is another faddish tendency that we must keep in mind and warn against. That is undue exposure to direct sunlight. A darkly tanned skin does not denote progress toward the cure of tuberculosis, particularly when most of the body surface is involved. It only shows nature's effort to protect an individual against his folly. I very much prefer the indirect sunshine or skyshine to any large doses of direct sunlight. I am firmly convinced that overdosage of sunshine is a very effective decalcifying agent, thus producing retrogression in healing rather than progression. What I have said of sunshine, of course, applies equally to the various methods of artificial ultraviolet light application.

My limited observation of roentgen ray and tuberculin therapy has produced a profound distrust of these agents.

Routinely each of my patients receives a course of six to eight large doses of sodium cacodylate intravenously, usually twice a year. This is not given with any idea of specificity. It is not, however, unusual to find a gain of 5 to 7 pounds in the month following its administration. It certainly is an excellent tonic, often replacing a feeling of general fatigue and languor with a feeling of well-being, and stimulating the appetite. It has seemed to improve the quality of rest at night in many of these children.

Another routine measure is the administration of calcium and phosphorus. I have been observing the use of four distinct preparations for this purpose. I have a strong impression that such a preparation entirely of organic origin (namely inositol hexaphosphate) gives more rapid healing changes, as noted by roentgen ray films, than do those of inorganic origin. I have given no intravenous calcium.

Of course all of these children are on cod liver oil. We are using routinely a cod liver oil reinforced with viosterol, up to 10 D, and find it very satisfactory.

We have not used Calmette's method of immunizing children, with negative Mantoux reactions, living in contact homes. Although it has the unqualified endorsement of many men of much wider experience than my own, I am not convinced that it is always harmless and without danger, and I refuse to assume the responsibility of administering it.

All forms of tuberculosis in children, excluding only that of the meninges, will repay us well for our pains in carefully directing treatment if our effort is always toward as-

sisting the body in its natural tendency in this direction.

1306 Professional Building.

DISCUSSION

DR. SAM SNIDER, Kansas City: So far as I have heard, both of these men have their feet on the ground; and that is what is required in this kind of work because interpretation of roentgen ray plates can very easily go astray when it comes to interpreting childhood tuberculosis.

Regarding Dr. Mantz's paper, I would like to say that I think the greatest diagnostic failure with tuberculin test in children is the failure to find the persons with whom the child came in contact. About a year and a half ago a patient was brought to me suspected of being tuberculous, a little girl 5 years of age. She had a positive reaction and positive roentgen ray. We searched that family to find the possible source, father, mother, cook, chauffeur; and finally we insisted there must be some coughing individual in the family. They said, yes, the grandmother had a cough. She had tuberculosis and was apparently the one who had infected the child. So I say, many of our diagnostic failures are due to our failure to find the adult who may be unconsciously infecting the child.

I would like to lay strong emphasis on the fact that in these tuberculous children the physical examination is nearly always negative. You do not get positive findings unless you use your thermometer, and then you may discover fever. That is about the only common thing in childhood tuberculosis. We use routinely for testing, old tuberculin which has an advantage over MA 100. I have had some cases of intimate contact which gave a negative reaction with MA 100. I do not believe it is as valuable in judging the condition as old tuberculin. I was very enthusiastic about it when it first came out, but not now. A negative reaction has some value; the positive reaction has greater value. A positive reaction has no known source of error except infection. If the tuberculin is old you may get a false positive, but when it is fresh and you have no infection you will not get a false positive. A negative reaction is an indication of no infection, of an old healed infection or a latent period of infection, and possibly some lack of immunity.

The prognosis of childhood tuberculosis usually is good. They nearly always get well, except for one or two possibilities; meningeal tuberculosis must always be considered and it is always fatal; peritoneal tuberculosis may occur in the course of childhood tuberculosis.

Sputum examination has very little value in diagnosis. In fact, I was impressed with the fact that Dr. Mantz said he had a patient with childhood tuberculosis and they found tubercle bacilli in the sputum. Then it was the ulcerative type and advanced beyond the childhood type.

One of my friends, the other day, said he hoped his child was tuberculous, would have a good degree of tuberculous infection, before he reached manhood. I think that is a damnable doctrine because of the danger of reinfection. The first infection is benign; if that can be avoided there will not be a second. The second infection does not lead to secondary tuberculosis, but to tertiary. We first have the primary reaction at the site of infection; then the secondary at the hilum; then we have the adult type with all the tertiary or late manifestations which is the serious thing we want to avoid but we will not unless we avoid the primary infection. I do not think there is any such thing as de-

sirable infection with tuberculosis. I think there is such a thing as desirable immunity.

I want to thank Dr. Berger for keeping his feet on the ground all the time. The best thing he said was that we should have horse sense in treating tuberculosis of childhood. If you put a child to bed you do more harm than good. The thing to do is to be sensible about it.

DR. R. M. WALLER, St. Joseph: It was recently my duty and pleasure during Tuberculosis Week to be called to give a talk on this subject at one of the city high schools and one of the rural high schools. Being a surgeon and never having been asked to give a public lecture on tuberculosis before I was embarrassed to know how to put it across.

I think probably the people of this country often think more, at least materially speaking, of their cars than they do of their children. A new car will often get far more consideration than the children; he will be willing to pay more for having the car looked over and kept in repair than for his children. This is the way I tried to put it over. I believed that in each student body there were some cases of tuberculosis. The suspects may not have had all the early symptoms with which we are familiar but I thought it a good idea to impress these youngsters, so they in turn might impress the same on the families to get them in the hands of the doctor of their choice for examination and if necessary have a tuberculin test or a roentgen ray of the chest or both. I told them it was a bad money-making scheme for the doctors, because trying to keep them from having tuberculosis was keeping money out of our pockets. On the other hand we do not crave money for doing a preventable fixation of a hip, for an operation on tuberculous tubes or tearing down the walls of the chest.

Speaking of cars, there is no glory to the machinist in repairing cylinders that have been burned out from oil neglect. In medicine there is likewise no glory in doing the radical things we encounter in tuberculosis. There is a definite satisfaction in aiding these people to grow up to useful manhood and womanhood. In the ordinary course of life we may look for our income from broken legs, babies, etc. It may not be such a bad business stroke on our parts to prevent or to arrest these cases.

I think the campaign emphasized in these papers is one of the greatest things ever undertaken for the protection of our youth.

DR. GEORGE H. HOXIE, Kansas City: The matter of skin testing for tuberculosis, and the matter of the roentgen ray examination for childhood tuberculosis are both so new that the majority of the practitioners of medicine do not know much about them. In fact, we older men have to reverse all the decisions of our student days when we undertake to diagnose tuberculosis in its primary stages. It is important, therefore, that in our county societies we have frequent discussions of the technic and standards for these tests. We doctors should put on the tests ourselves. For if we do not do it the force of public opinion will soon compel the salaried officers of county and city organizations to do it for us.

The movement toward requiring tuberculin testing in the children of the public schools is gathering momentum. Such a movement should be welcomed by the medical profession and guided along the lines of the greatest public good.

DR. HERBERT L. MANTZ, closing. Only one thing more I would like to say about the quantitative tuberculin test. There has been quite a little discussion about the quantitative use of the tuberculin test. There are

two ways of doing that. One is the standard dose of tuberculin, 1/10 milligram, and another way is the very small dose, beginning perhaps with 1/100 milligram, and going up and determining the threshold of allergy. In my experience these have been very disappointing. We have not been able to determine any causative relation between the size and intensity of the tuberculin reaction and the presence of actual clinical disease. I do not believe we ever will because the whole process is such a developmental affair. Following the first infection you have the production of allergy, but many reflexes enter into this, such as the patient's resistance, the virulence of the organism, the location of the disease, plus intercurrent infections, and these multiply from start to finish. As a rule, allergy tends to increase after a certain time and then fades. If you test the tuberculin reaction at different stages you will get a difference in the response. As far as the quantitative reaction is concerned, I have very little faith in it.

CHRONIC PROSTATITIS: ITS BENEFITS AND DANGERS IN PROSTATIC UROGENIC OBSTRUCTION

DAVID B. STUTSMAN, M.D.

ST. LOUIS

In this group, clinically considered, only those cases are dealt with which give definite subjective symptoms and objective findings other than those accompanying the routine case of chronic prostatitis indicated by pus in the prostatic secretion as a focus of infection. In other words, a fractional group of cases of chronic prostatitis which without consideration of age show some of the definite findings we encounter in intermittent obstruction without a constant residual urine.

The symptoms more frequently encountered are pain and burning in the perineum or rectum, burning frequency or pain at intervals on urination, and the various sexual complaints. These latter have particularly led this group frequently to be classified as sexual neurasthenia. A part of the tendency toward the readiness to make such a diagnosis is no doubt due to this probably being one of the most difficult problems the physician encounters.

Objectively the finding given greatest consideration in these cases was an intermittent infection in the bladder urine at various intervals associated with a degree of difficulty on urination.

In examining such a patient the usual findings and diagnosis of prostatitis are encountered. In addition the prostatic urethra from veru to vesicle orifice is intensely inflamed. Apparently it is largely from this

area that the symptoms are derived. Massage along with dilatation and instillation will relieve the majority and urethral fulguration many of the more persistent ones. However, certain of these cases do not improve while in others the relief is of short duration. In again observing such cases cystoscopically one may frequently find evidence of some fibrosis or contracture at the vesicle orifice not noted at the original examination.

Seeing two such cases showing this clinical syndrome the age of each being such that early hypertrophy might be a factor although no constant residual urine was found, resection of a moderate amount of tissue at the vesicle orifice was done and some very slight surface coagulation carried down into the prostatic urethra. The result was so beneficial that believing some intermittent retention from inflammation as well as from hypertrophy might occur four cases under the age of forty were treated in the same manner. These patients were relieved entirely, each having been on conservative treatment for prostatitis for long periods of time without appreciable effect.

Relief of intermittent inflammatory obstruction at the vesicle orifice of course will not in itself free the prostate and vesicles of infection but through adequate drainage will relieve the patient's symptoms which are unquestionably associated with this type of obstruction. Further conservative treatment should then stand a much better chance of eliminating the original focus of infection.

Naturally those cases showing polypoid growths, diverticula or any such gross pathology in the prostatic urethra are relieved in adequately eliminating these.

I realize that a final conclusion cannot be drawn from this series but the comparative simplicity of the procedure compared with radical drainage of prostate and vesicles as the only adequate treatment heretofore as recommended by Fuller, Young, Squier and others, seems to warrant its trial.

The interesting factor is the possibility of intermittent inflammatory obstruction and early fibrosis and contracture without the necessity of accompanying hypertrophy.

Fortunately only a small fraction of chronic prostatitis cases merit this consideration.

The last two cases resected were treated after the publication of Dr. D. M. Davis' paper in the *American Urological Journal* of November, 1933.

TRANSURETHRAL PROSTATOTOMY: MOTION PICTURE DEMONSTRATION

NEIL S. MOORE, M.D.

ST. LOUIS

A study of the various instruments that have been devised for the transurethral relief of bladder neck obstructions since their recognition as a pathological entity is very interesting. Cold cutting knives concealed within catheters of Guthrie; the electric forager of Bottini; the cold punch of Young which was later improved when Caulk added a cautery blade; and finally the loop resectoscope are among many too numerous to mention.

After using most of the modern instruments we have chosen the McCarthy resectoscope virtually to the exclusion of all others because there is a wider field of action; it cuts with the stream and not against it thereby removing tissue in the most advantageous place. The operation is entirely under vision and hemorrhage is controllable providing one goes about it in a systematic way with all equipment and assistants functioning perfectly. Any deviation in routine or faulty equipment may mean loss of valuable time.

We prefer the cautery punch through the closed and the cold punch through the open bladder for removal of tissue from dense carcinomatous prostates and fibrotic bars.

Selection of cases is very important. The grossly enlarged prostates are better removed by enucleation. All minor obstructions and some of the larger ones in bad risks can be successfully relieved by some transurethral operation.

Most of our transurethral operations have been performed under low spinal anesthesia using 50 to 75 mgm. of novocain in sterile distilled water, though sacral is usually sufficient. Infiltration and inhalation anesthesia have not been satisfactory.

There have been two deaths, a mortality of about 2.5 per cent. One died of pneumonia five days after a suprapubic cystotomy for relief of delayed hemorrhage. The other, a chronic luetic, died 48 hours after operation from cardiovascular collapse and acute dilatation of the stomach. It has been necessary to do one repeat operation and two enucleations where large glands were concealed within very tight capsules.

The motion picture shows actual removal

of sections from animal tissue molded to conform to the size and shape of a prostate gland in a phantom bladder. An entire spinal anesthesia and transurethral operation are performed on a patient 72 years of age with complete retention of foul urine and an otherwise bad operative risk from the standpoint of renal and cardiovascular functions. Finally, the same patient is shown voiding a large stream with perfect functional result 10 days following the operation.

729 Frisco Building.

SPECIAL ARTICLE

CANCER SURVEY OF MISSOURI

FRANK LESLIE RECTOR, M.D.

Field Representative of the American Society
for the Control of Cancer

NEW YORK, NEW YORK

The only recognized treatment methods are surgery and irradiation by roentgen ray and radium, either singly or in combination. As far as is known every form of cancer is best treated by these methods. There is no occasion for a physician to use other forms of therapy because one of these methods may not be available. The interests of the patient dictate that under such conditions he should be sent where these facilities are available.

Treatment of cancer along lines recognized as adequate requires special facilities, equipment and training. At this time there are but twelve special cancer hospitals in the United States and the great majority of such patients are being treated in general hospitals. As the profession and public become better educated as to what constitutes adequate cancer service special institutions may be developed for these patients. The provision of adequate facilities for diagnosis and treatment is beyond the means of the average general hospital and special tumor services are being organized in some of the larger hospitals throughout the country. It remains to be seen whether general hospitals can and will provide necessary facilities and personnel to care for the cancer patient in an acceptable manner or whether institutions specially designed for this purpose will come into existence.

In addition to provision for treatment of the disease by one or more of the means men-

Survey made by the American Society for the Control of Cancer at the request of the Missouri State Medical Association upon the recommendation of the Committee on Cancer.

This is the fourth installment of the Survey. It will be continued through several issues because of its length.

tioned previously, a well rounded cancer program includes complete records of the service rendered and a follow-up system whereby the patient's history is available over a period of years following treatment. These patients should be followed, if possible, during the remainder of their lives and all hospital cancer records should be kept open until the death certificate can be filed with them. In any event this follow-up should be maintained for a minimum of five years if worth while evaluation of the treatment is expected.

Sufficient authentic evidence is now available that when treated during its early stages, i. e., while the lesion is confined to its original site and without evident metastasis, permanent relief is secured in a large percentage of cases. If the disease is first seen late in its course the chances of permanent relief are very greatly reduced. It is believed that if present knowledge of the cause and cure of cancer were utilized fully by the public and the medical profession deaths from this disease could be reduced from one third to one half. Major emphasis on methods of controlling this disease should be placed on early recognition and early adequate treatment. To accomplish this end education of the two groups most concerned, the medical profession and the public, is necessary.

Education of Medical Profession.—The medical profession should be taught to recognize cancer in its early stages and to give adequate treatment after the case is diagnosed. The final results rest largely with the first physician who sees the case. If he is not prepared to give or get the answer the patient may drift along until all hope of permanent relief is lost.

The public should not be educated to want a service that the medical profession cannot supply for lack of training and experience in the cancer field or because of lack of hospital facilities. Should this situation arise the public may demand provision of this service under conditions over which the profession has little or no control. Such action would take this question out of the hands of the medical profession where it properly belongs.

It is believed that, although the public has not yet taken a serious interest in cancer prevention and control, the time is not far distant when such an interest will be manifest. When this time comes the medical profession should be ready to assume a larger responsibility in meeting the needs of the situation.

The time necessary to accumulate authentic information on cancer patients is so long, owing to the necessary protracted period of observation following treatment, that the education of the physician and his preparation for handling such cases must also be extended over a considerable period. The profession should keep this fact in mind and around it organize its educational activities in the cancer field so as to be ready for the larger part it surely will be called upon to play in the future control of cancer as well as to provide the best possible service for such patients at this time.

One requisite for improved cancer treatment is a more adequate training in acceptable diagnostic and therapeutic procedures. While cancer patients constitute but a small percentage of admissions to general hospitals no other disease carries such a high mortality. For this reason cancer assumes an importance out of all proportion to the number of other cases seen in general medical practice; and when it is realized that cancer now occupies second place as a cause of death and that it is assuming increasing importance in the public mind, the necessity for a more thorough knowledge of the disease by the medical profession is evident.

The responsibility of the physician in this field has been outlined in an editorial in the *Journal* of the American Medical Association of December 30, 1933, page 2122, as follows:

Notwithstanding the slowness of scientific progress, the knowledge of cancer is actually growing. The truth is that more advance has been made in detailed knowledge of cancer during the last two or three generations than in all previous time. The details of this new knowledge need not be reviewed item by item. The practical outcome is that, while any complete understanding of cancer has not been reached, the power of medicine to prevent, to diagnose and to treat cancer has been increased enormously. And the responsibilities of the physician with respect to cancer have increased likewise. On him rests primarily the duty to make sure that the individual patient receives the benefit of the knowledge and the measures that tend to prevent cancer. Briefly, prevention of cancer rests mainly on the avoidance and removal of "local irritation." Just how "local irritation" acts to cause cancer is not known, but there is no doubt that it may lead to cancer. Of the tissues liable to such irritations and chronic inflammations may be mentioned the uterine cervix with its lacerations and "chronic cervicitis," the skin and its moles and ulcers, the mouth, the tongue, the mucocutaneous junctions, the breast and the prostate with their chronic hyperplastic inflammations. Here is indeed a wide field for constant preventive efforts by the progressive, cancer-conscious physician.

Self-evidently, on the physician rests also the main responsibility for the early diagnosis of cancer, on which in turn depends the outcome of its treatment. In connection with this matter, of such vital significance to the individual patient, the physician must

consider thoroughly and conscientiously such questions as these: Has he formulated for himself a wise and practical plan for action in all cases in which the question of cancer may arise? Are his regular patients likely to report to him promptly the appearance of any suggestive symptom or sign? If not, why not? Is he fully prepared to take without delay the necessary steps, either by himself or through competent consultants, to secure the final diagnosis in a given case with a doubtful lesion? Does he realize fully that it may be a fatal error to tell a patient with a suggestive lump or lesion somewhere "to forget it and come back next month"? Are the services of a competent pathologist readily available and will adequate specimens for microscopic diagnosis reach the pathologist promptly and in the proper state of preservation? Are the special experts to whom he may refer cases for diagnosis and treatment fully equipped in all respects for prompt and efficient service? Does he accept in its full meaning the statement that the treatment of cancer, surgical as well as radiologic, should be entrusted only to those who have adequate skill and experience? These are questions that the physician must answer in a practical and trustworthy manner if he is to meet his responsibility with respect to cancer as now understood. Better control of cancer by prevention, early diagnosis and prompt treatment rests with the physician.

One method of bringing about a better appreciation of the cancer problem by the medical profession is by giving undergraduate medical students the best possible training in diagnostic and treatment procedures. Such students should understand biopsy technic and preferably assist in such work. They should follow tissues through the laboratory and study the microscopic sections. They should be familiar with the history of the case and keep in touch with the follow-up and observation of the patient after treatment.

In speaking on this subject, Dr. James Ewing* has said:

Medical students carry a heavy burden of fundamental information about the basic sciences, but few of them ever see the various major forms of cancer in their early stages, and gain a competent knowledge of their differential diagnosis. They practice first rate chemistry, physics and mechanics, but stand without adequate resources before the early diagnosis of the major cause of death. . . . The establishment of adequate opportunities for the study of cancer for undergraduate and graduate physicians is the first step to be taken by those seriously interested in the control of these diseases.

Postgraduate Teaching.—Another necessary element in an improved service is the giving of postgraduate courses and holding of staff conferences on cancer cases. By these means physicians in active practice can obtain the latest information on this subject which should in turn be translated into an improved service for the cancer patient. No other group is so well fitted to take the leading part in a program of cancer

control as the medical profession, but to merit and maintain this leadership it must take advantage of all opportunities for further education of its members in this important field of medical practice.

The hospital staff conference offers one of the best opportunities for postgraduate education as all parties to the diagnosis and treatment of the case are available for consultation and discussion. The pathologist can present evidence disclosed by the laboratory and the microscope. The roentgenologist can interpret the roentgen ray findings and the diagnostician can contribute the result of his examinations. From these combined reports the best treatment of the patient can be developed and all features of the case made available for study and discussion.

In this connection the following quotation from Dr. James Ewing* is of importance and significance:

What constitutes a diagnosis of cancer, and by what means can it be accomplished? A diagnosis may be said to have been obtained when the clinician has been placed in command of data which will enable him to understand the origin, course, and prognosis of the case in hand. This information must include the results of a physical examination of the patient, roentenologic study, and of histological study, which reveal the structure of the tumor, the origin of the tumor, its grade of malignancy and the grade of radiosensitivity. Without all these data, the diagnosis must be regarded as incomplete.

The physical examination of the patient covers by far the largest field in the diagnosis of cancer. Experienced and alert physicians in general or special practice, thus discover the majority of malignant tumors immediately and with considerable certainty, and thereby render to the public perhaps the most important service of practical medicine. On the other hand, careless, incomplete and perfunctory examination of the patient is daily leading to the complete oversight of precancerous lesions and established cancer, to the adoption of unwarranted and unjustified, generally less serious, diagnoses to the hasty resort to biopsies and exploratory operations, to expensive and unnecessary radiological studies, to unfortunate delays and disappointments, all resulting in increased and unnecessary morbidity and mortality. . . .

Until the practicing physician learns to keep the suspicion of cancer constantly in mind, knows the early manifestations of the disease, and pursues, as an invariable routine, the following up of all danger signs, there will be no great increase in the cures of cancer.

Dr. S. C. Harvey,† professor of surgery, Yale University Medical School, has said:

The necessity for an intensified attack on the problems arising from cancer in man becomes daily more apparent. With more accurate vital statistics, with the more refined methods of diagnosis, and with the drop in mortality rate as a result of the control of

* Ewing, James: *Causation, Diagnosis and Treatment of Cancer*, Baltimore, Williams and Wilkins Company, 1931, pp. 40-41.

* Ewing, James: *Causation, Diagnosis and Treatment of Cancer*, Baltimore, Williams and Wilkins Company, 1931, pp. 41-42.

† Harvey, S. C.: *The Yale Journal of Biology and Medicine*, p. 533 (July) 1931.

the diseases incidental to infancy and early adult life, the morbidity and mortality from cancer, which strikes at the time of life when a person's experience has matured but when his work is only half done, are becoming appalling. The economic loss is secondary only to the suffering entailed in the individual and in those about him.

In former years, when the importance of this problem was less apparent, the individual person with the disease was carried in the general load of medical and surgical work with the result that the attack was desultory and ineffectual, and the general opinion was extremely pessimistic as to the outcome in the individual case. However, in the last decade everywhere throughout the civilized world, the investigation of cancer has been broadened and intensified, and the plan of attack upon its occurrence in man has gradually developed. The antituberculosis crusade of the previous generation has in many ways served as a model and an inspiration, for, although the problems differ in some respects, they are common in that the attack must be concerted and organized and centered about early diagnosis, the provision of adequate facilities, and the development of specialized professional care.

Education of the Public.—The public must be taught the hopefulness of early treatment of cancer so that it will seek treatment during the early stages. The profession must also be educated to recognize early signs and symptoms of the disease and to appreciate the possibility of a cure when the disease is seen in its early stages.

Two periods of delay in securing treatment must be overcome before headway can be made in controlling this disease. The first period is that between the time the patient notices something wrong and a physician is consulted. A survey made in Massachusetts in 1925 showed that the average cancer patient consulted his physician eight months after knowledge of the first symptoms of the disease and that cancer patients who had surgical treatment and ultimately died had waited more than ten months after the first symptoms before having an operation.

A survey* of the records of admission to the Barnard Free Skin and Cancer Hospital, St. Louis, in 1930 showed that patients with cancer of the lip waited approximately one year before applying for treatment; breast cancer patients waited approximately ten months; those with cancer of the cervix nearly six months, while those with cancer of the skin, the most easily recognized of all, waited from twenty to twenty-four months before seeking medical attention.

In a study of 121 cancer patients from Missouri outside of St. Louis and St. Louis County seen in Barnard Hospital in 1932 the duration of lesions before reaching this hospital was as follows:

| | | | |
|-------------------|----|-----------|----|
| Less than 1 month | 2 | 2 years | 18 |
| 1 month | 3 | 3 years | 7 |
| 2 months | 8 | 4 years | 2 |
| 3 months | 9 | 5 years | 5 |
| 4 months | 9 | 6 years | 3 |
| 5 months | 5 | 8 years | 1 |
| 6 months | 5 | 11 years | 1 |
| 7 months | 2 | 14 years | 1 |
| 8 months | 5 | 15 years | 1 |
| 9 months | 3 | 18 years | 1 |
| 11 months | 1 | 24 years | 1 |
| 12 months | 14 | 25 years | 1 |
| 16 months | 1 | | |
| 18 months | 7 | Not known | 5 |

No further evidence than the above is necessary to emphasize the need for additional constructive educational work with the public regarding the necessity for early diagnosis and treatment.

The other period of delay is that of the physician in rendering competent service when the patient first presents himself. By this is meant the "watchful waiting" of some physicians to see what further symptoms will develop that will aid in the positive diagnosis of the condition. Too often this delay spells the difference between cure and lingering death from metastases in inaccessible regions.

Two outstanding fallacies regarding cancer are held tenaciously by many people. The first of these, that cancer from the beginning is an incurable disease, is also shared by too many older physicians. The second is that the presence of cancer signifies a social disgrace and for this reason many patients will conceal the disease from their family and closest friends until it is so far advanced that pain and other symptoms compel its disclosure.

Another group whose importance is greatly overemphasized by some is composed of persons whose every abnormality is construed as cancer, a "cancerphobia" so called. Thinking something is wrong they consult a physician and, on being told that no evidence of disease can be found, seek confirmation of their fears elsewhere. Such neurotic individuals will continue to worry but in the absence of the disease will never die from the belief that they have it. If they do not worry about cancer they will worry about something else. Investigations have shown less than 3 per cent of those applying to certain cancer hospitals have an imaginary malignancy. Surely the other 97 per cent or more should not be dismissed as cancerphobes when their intelligence has directed them to proper sources for information about their physical condition.

Physicians should be more concerned

* Little, Clarence Cook: Cancer Survey of St. Louis and St. Louis County, J. Missouri M. A. 29:249 (June) 1932.

about the cancerphobia that keeps patients away from them than about the morbidly introspective individual who is always suffering from imaginary illness. Those who know something is wrong and delay seeking medical attention for fear they may be told they have cancer are a serious problem and constitute a large group of the hopeless cases seen by the medical profession. If the public must fear cancer, it should be taught to fear the beginning of the disease rather than its ending.

The public and the medical profession should become familiar with the signs and symptoms, the "danger signals," of early cancer. These are: A lump that persists in any part of the body particularly in a woman's breast; a sore, especially about the face or buccal cavity, that does not heal within the normal healing period; an unnatural blood-stained discharge from a natural body orifice, particularly vagina, bladder or rectum; change in size or color of warts or moles, and persistent indigestion with loss of weight. If the public sought medical advice when one or more of these symptoms appeared and if the medical profession always had cancer in mind when examining such a patient a large number of cases would be discovered in early stages when there is most hope for a cure.

Years ago the majority of cancer patients were seen in late stages. More recently the value of early treatment was established. Today prevention of cancer is being discussed as the significance of certain abnormalities become known. A group of mildly pathologic conditions of widespread distribution in the body are now looked upon as important precancerous conditions. Leukoplakia of buccal or vaginal mucous membranes, chronic cervicitis associated with cervical lacerations at childbirth, dry scaly keratoses of exposed skin areas such as face and hands, pigmented moles and warts if subject to irritation of clothing or other friction are all considered potential sources of malignant degeneration as the individual grows older. One or more of these abnormal conditions may exist for years without showing suspicious changes but, as cancer in these tissues often is preceded by a period of known mild pathology, the physician cannot ignore these significant lesions of a precancerous character. Their removal is now considered a desirable preventive measure. As a rule they respond readily to appropriate treatment.

The psychology of the cancer patient is an

important factor in his treatment. No other disease carries the load of depression and discouragement that cancer does. The feeling of hopelessness is difficult to overcome in many cases. Often this depression is due to the patient's ignorance of his true condition. He is not told the nature of his ailment and as time goes on with slow improvement or aggravation of the disease his morale suffers. The policy of telling patients that they have cancer is spreading. Reports from hospitals and clinics where frankness prevails between physician and patient are that such frankness is appreciated and the patient is more cooperative.

The public is becoming so familiar with the symptoms of cancer that many people discuss them intelligently. In certain communities rather positive public opinions are held regarding the value of different therapeutic measures. These opinions doubtless are developed largely from the attitude of local physicians toward the problem. An attitude of honest frankness on the part of physicians would do much to eradicate fear and erroneous conceptions of the disease from the minds of patients and the public.

Cancer a Public Health Problem.—Cancer is claiming increased attention as a public health problem. Eleven states, Colorado, Delaware, Florida, Kansas, Louisiana, Mississippi, Montana, Nevada, Oregon, Washington and Wisconsin, now have laws or departmental regulations having the effect of law making it a reportable disease. Adequacy of reporting varies considerably in these states and in some the law is practically a dead letter.

(To be continued in the February issue.)

ECTOPIC PREGNANCY

In the course of a general surgical practice Chester M. Echols, Milwaukee (Journal A. M. A., Dec. 1, 1934), has operated on 103 cases of ectopic pregnancy. The predominant age was from 25 to 35 years; the oldest patient was 43. Four cases were twin pregnancies; all unilateral. There was no case of concurrent intra-uterine and extra-uterine pregnancy. Two were abdominal pregnancies of from six to seven months. Ovarian pregnancy, interstitial pregnancy and lithopedion formation were not encountered. In no case was there a rupture into the broad ligament. In one instance the pregnancy was in the rudimentary horn of a bicornate uterus. One patient subsequently became pregnant in the remaining tube. None of the patients died. The author discusses the observations under the following headings: incidence, previous gonococcal infection, previous operations and abortions, age and social status, sterility, menstrual anomalies, tubal abortion and tubal rupture, abdominal pregnancy, multiple pregnancies, pregnancy in a rudimentary horn of a bicornate uterus, recurrence, diagnostic errors, operative measures and mortality.

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JANUARY, 1935

EDITORIALS

THE EXCELSIOR SPRINGS SESSION

The dates of the 1935 Annual Session to be held in Excelsior Springs have been set by the Council as Monday, Tuesday, Wednesday and Thursday, May 6, 7, 8 and 9.

The General Committee on Arrangements appointed by the Council consists of Dr. Spence Redman, Platte City, chairman; Dr. A. J. Welch, Kansas City, and Dr. W. T. Elam, St. Joseph. This Committee appointed Dr. Joseph V. Dauksys, Excelsior Springs, as chairman of the Local Committee on Arrangements. Dr. Dauksys will select the members for the various subcommittees.

All sessions will be held in the Elms Hotel.

It is the earnest wish of the committee arranging for the Annual Session that there be a worth-while and complete group of scientific exhibits to complement the scientific program. The value of an interesting visual display is unquestionable. Therefore, it is urged that immediate serious thought be given the preparation of scientific exhibits by those who have contemplated them. In order to make the Annual Session of the Association more worth while the participation of members in the activities of the Session is essential. Correspondence is invited and information will be furnished by the chairman of the local Committee on Arrangements.

CHANGE IN DIRECTORSHIP OF ST. LOUIS CHILD GUIDANCE CLINIC

Members of the Association, especially members in St. Louis, will learn with regret that Dr. William Nelson, director of the Psychiatric Child Guidance Clinic at St. Louis, has been removed from that position

by the Director of Public Welfare. He will be succeeded by Dr. Edmond Sassin, assistant professor of neurology and psychiatry in the St. Louis University School of Medicine.

Dr. Nelson has been director of the Child Guidance Clinic ever since the clinic was founded eleven years ago. He has won an enviable reputation in the care and direction of the children in the clinic and his services have been eminently satisfactory to the city and the officials under whom he has worked. Certain plans in process of completion seem to make it necessary for the director of public welfare to place a younger man in charge of this work so that when the plans for the future conduct of this clinic have matured Dr. Sassin will be in intimate association with the development of the work.

One of the principal features of this development is the erection of a psychiatric hospital and the training of the director and the personnel so that when the hospital is completed and open for the reception of patients the staff will be at once ready to function officially. The Child Guidance Clinic will then be made a division of the psychiatric hospital. At present this clinic is operated as an individual unit.

Under Dr. Nelson's directorship the clinic became an important arm in the development of public welfare in this field but its isolation from the hospital department retarded it from reaching its greatest usefulness in training the mentally defective children to become useful citizens.

In announcing the change in directors of the clinic, Director Darst said "The replacement of Dr. Nelson is a matter of sincere regret to me. His services to the city as founder of the clinic and as its director for a period of eleven years have given satisfaction to large groups of our citizenry. He has accomplished a wealth of good for the children who came under his direction and for the advancement of psychiatry."

Dr. Sassin, who is much younger than Dr. Nelson, has specialized in neuropsychiatry for a number of years. He brings to the office the experience of close contact with mental and nervous disorders and administrative ability that induced Director Darst to select him as Dr. Nelson's successor.

POLIOMYELITIS

In November, 1934, it was announced that Dr. William H. Park, long time director of the research laboratories of the New York

City Health Department, had produced a serum made from the spinal cord of monkeys which was effective in immunizing children against poliomyelitis. This was accepted widely as the culmination of a long research in the prevention of infantile paralysis.

Hope of conquering the disease first arose in 1910 when Dr. Simon Flexner of the Rockefeller Institute announced that he had discovered the virus which causes the disease and a search for a vaccine which would immunize children against poliomyelitis was accelerated. Last year Dr. Maurice Brodie, Manhattan, and Dr. Arthur Roland Elvidge, of McGill University, proved that the virus traveled up the olfactory nerve to the brain, thence to the spine, a contention of Dr. Flexner's.

Convalescent serum has been employed with greatly varying results in the hands of different operators. It may be effective in the prevention of poliomyelitis after exposure by producing a passive immunity. If this occurs, then in all probability the child will again become susceptible after the lapse of two or three weeks as this is true of measles prophylaxis with convalescent serum, diphtheria and tetanus immunization with antitoxin. In the treatment of the disease, it seems doubtful whether it will ever prove very effective since the virus diseases, i. e., measles and smallpox, cannot be modified once the symptoms have begun. Also, once a toxin becomes fixed to a nerve cell, therapeutic serum has little effect on the process.

In a search for a serum more practical and more reliable than that obtained from the blood of persons who had been afflicted with the disease, Dr. Brodie, working with Dr. Park, discovered that a vaccine made from the spinal column of infected monkeys would immunize other monkeys. After testing the vaccine on themselves and laboratory associates, twenty-four children were inoculated and later forty-eight more children. All proved immune to poliomyelitis. During 1935 the blood of these children will be tested periodically to ascertain if they continue to be immune. The newspapers heralded this work in November, 1934, but no report of it has been published in any scientific journal.

Should this prove successful as an immunological agent there are still practical obstacles to extensive immunization. Wholesale immunization is objectionable because only a relatively small part of the population ever contracts the disease, at least in recognizable form (estimated as less

than 1 in 1000 population even in epidemics). Two thirds to three fourths of the adults are immune, perhaps because of mild, unrecognized attacks of the disease without paralytic symptoms. Even if desirable, universal immunization of children would be difficult for although all types of monkeys can be used in the manufacture of the vaccine, the *Macacus rhesus* from India is the best. To import one rhesus monkey into the United States costs \$9. The processing cost of the finished vaccine is \$3 more. And this vaccine is enough to inoculate only twelve children, making the cost of each inoculation \$1. There are 37,000,000 children under 15 years of age in the United States. Eighty per cent of cases occur in children under 10 years and 98 per cent in children under 15 years. And even if the \$37,000,000 were available for universal inoculation the supply of rhesus monkeys is not unlimited.

Infantile paralysis was first recognized as a district disease in 1784 in England. The first known case in the United States was in 1841. The first epidemic in the country occurred in Vermont with 132 cases in 1894. In 1907 and 1908 there were 2000 cases and 130 deaths in New York City. In 1916 there were 7130 deaths among children in the United States. In 1931 Brooklyn had 4000 cases and last summer 1300 children in California were mildly affected. Mortality rates run as high as 30 per cent.

The name of Dr. William H. Park has been so intimately associated with the prevention and treatment of communicable diseases that his progress, although this research is not completed, is being watched with interest and hope by the medical profession and the public.

NEWS NOTES

Dr. John R. Caulk, St. Louis, delivered an address at the meeting of the Southeastern Branch of the American Urological Association at Atlanta, Georgia, December 8 and 9. His subject was "Bladder Neck Obstructions in Children."

Drs. Albert N. Lemoine and N. Eugene Lacy, Kansas City, were the guests of the Southwest Medical Society at Fredonia, Kansas, December 13. Dr. Lemoine spoke on "Ocular Manifestations of Congenital Syphilis" and Dr. Lacy on "Recurrent Mastoiditis."

The St. Louis Trudeau Club will meet at the St. Louis Medical Society Building, St. Louis, January 3, 8:30 p. m. Dr. John J. Hammond, St. Louis, will speak on "Pneumothorax in the Treatment of Lobar Pneumonia." Drs. M. Huber and S. Tashma, St. Louis, will present reports on interesting roentgen rays with case histories.

Dr. Philip P. Jacobs, New York, and Dr. Paul J. Zentay, St. Louis, delivered addresses at the twenty-eighth annual meeting of the Tuberculosis and Health Society of St. Louis on December 3. Dr. Jacobs spoke on "Looking Into the Future of Social Work" and Dr. Zentay discussed "Has Educational Work Any Part in a Public Health Program?"

The annual Hodgen Lecture will be presented January 9 before the St. Louis Medical Society by Professor Henry E. Sigerist, Baltimore, of the Institute of History of Medicine, Johns Hopkins University. His subject will be "Surgery at the Time of Introduction of Antisepsis." The Hodgen Lecture is presented each year under the auspices of the St. Louis Surgical Society and the Medical Fund Society in memory of Dr. John T. Hodgen.

The following speakers responded to invitations from the Postgraduate Committee of the State Association to deliver addresses at recent meetings of the component county medical societies:

Drs. Frank Neff and Buford Hamilton, Kansas City, were the guests of the Chariton County Medical Society at Salisbury, December 4. Dr. Neff spoke on "Feeding and Diarrhea of Infants" and Dr. Hamilton discussed "Prenatal and Postnatal Care."

The Nodaway County Medical Society had as its guests at Maryville December 5, Drs. E. W. Wilhelmy and R. Lee Hoffman, Kansas City. Dr. Wilhelmy spoke on "Certain Aspects of Coronary Disease" and Dr. Hoffman on "Bladder Neck Obstruction."

On December 6 Drs. Joseph P. Costello and Anthony B. Day, St. Louis, were the guests of the Six County Group at Caruthersville. Dr. Costello presented a talk on "Influenza and Pneumonia From the Standpoint of the Pediatrician" and Dr. Day spoke on "Influenza and Pneumonia."

Drs. Lee Petit Gay and Roland M. Klemme, St. Louis, were the guests of the Caldwell-Livingston County Medical Society at Chillicothe December 14. Dr. Gay

discussed "Gastro-Intestinal Allergy" and Dr. Klemme's subject was "Neurosurgical Problems."

The St. Louis Society for the Blind held its twenty-third annual meeting December 4 at the Washington University School of Medicine. The society had invited Dr. Edward Jackson, Denver, emeritus professor of ophthalmology in the University of Colorado School of Medicine, to be the guest speaker at this session. Unfortunately Dr. Jackson missed his train connection and could not reach St. Louis in time to be present at the meeting. After reports on the social work and the proposed program for the next five years Mr. Carter Lewis of the Union Electric Light and Power Company, St. Louis, discussed "Lighting and Industrial Plans."

Physicians of the American Medical Association have been solicited by Dr. John M. Grimes to purchase a book of which he is the author purporting to contain the results of a study recently made by the Council on Medical Education and Hospitals of the hospitalization of the mentally ill in the United States. We are informed that such individual use of the Council's material is wholly unauthorized. A report prepared by Dr. Grimes when he was employed by the Association was not published because in the opinion of the Council and an advisory committee of psychiatrists and neurologists his conclusions were not supported by the evidence presented. Two partial reports that have already been published will be supplemented when further studies have been completed.

Twenty-six members of the St. Louis Medical Society who have completed fifty years of practice were honored at a meeting of the Society November 27. The address of the evening was presented by Rabbi Julius Gordon, St. Louis. The remainder of the program was informal. Friends and families of physicians attended the meeting. The members who were honored for their long service were: Drs. Carl Barek, Louis C. Boisliniere, Henry S. Brookes, James A. Dickson, Meyer J. Epstein, William A. Fries, Francis R. Fry, Joseph Grindon, Moses E. Haase, Willis Hall, Eugene F. Hauck, Louis Hauck, Moses W. Hoge, George A. Humpert, Bransford Lewis, Heine Marks, Fred W. Patton, Amand Ravold, Francis Reder, Henry Schwarz, George N. Seidlitz, Max C. Starkloff, Paul F. Basterling, John W. Vaughan,

Benjamin A. Wilkes and Henry L. Wolfner. Dr. Carr Lane a former member of the Society was a guest. He also has spent fifty years in the practice of medicine in St. Louis.

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Abbott Laboratories

Sulpharsphenamine—A b b o t t, 0.1 Gm. Ampules

Sulpharsphenamine—A b b o t t, 0.5 Gm. Ampules

Sulpharsphenamine—A b b o t t, 0.8 Gm. Ampules

Wm. S. Merrell Company

Diphtheria Toxin for the Schick Test, Diluted with Peptone Solution and Ready for Use

Diphtheria Toxoid

Diphtheria Toxoid, Alum Precipitated (Refined)

Typhoid Vaccine

H. A. Metz Laboratories, Inc.

Holocaine Solution 1 per cent

Sandoz Chemical Works, Inc.

Ampules Gynergen Solution 1:2000, 0.5 cc.

G. D. Searle & Co., Inc.

Tablets Procaine Borate and Epinephrine Sharp & Dohme

Rabies Vaccine (Phenol Killed)—Mulford, 7 vials package

Frederick Stearns & Co.

Insulin Stearns, 100 Units, 10 cc.

Ulmer Pharmacal Co.

Sodium Morrhuate 5% Solution with Benzyl Alcohol (Ulmer) 5 cc. Vials

Sodium Morrhuate 5% Solution with Benzyl Alcohol (Ulmer) 20 cc. Vials

The Committee on Health and Public Instruction of the St. Louis Medical Society reported December 4, 1934, on a study made by the committee on the cancellation by the War Department of training for the medical Reserve Officers Training Corps. The resolution presented by the committee and adopted by the Society follows:

WHEREAS, It was thoroughly demonstrated during the World War that this country paid highly in blood and money because there was no adequate mechanism for speedy mobilization and training defensive forces of the nation, and

WHEREAS, The Medical Department of the U. S. Army was in no noteworthy better condition than other departments, despite the fact that it must always

be mobilized before combat as other arms are mobilized, and

WHEREAS, Under authority of the National Defense Act since the World War the Medical Department of the Army has been maintaining Reserve Officer Training Corps Units in medical schools which units supplied about one half of the new medical reserve officer personnel, and gave valuable training preparatory to any national emergency, and whereas these training units have now been discontinued by Act of Congress ostensibly as an economy measure which leaves the War Department greatly embarrassed in the procurement of new medical officer personnel, which embarrassment will increase to serious proportions after a very few years, therefore be it

Resolved, That the St. Louis Medical Society protests that such Federal economies are harmful to our national defense, and be it further

Resolved, That the Medical Reserve Officers Training Corps Units should be reestablished as soon as possible, and be it further

Resolved, That a copy of these resolutions be forwarded to the Secretary of the War Department, the Surgeon General of the U. S. Army, the Congressmen from the State of Missouri, the American Medical Association, the Missouri State Medical Association and the director general of the American College of Surgeons and of the American College of Physicians.

OBITUARY

D. A. BARNHART, M.D.

Dr. D. A. Barnhart, Huntsville, a graduate of Marion-Sims College of Medicine, St. Louis, 1895, died from a heart attack at his home, September 19, aged 67 years.

Dr. Barnhart was born near Darksville in Randolph County and spent his early years on a farm. He operated a drugstore at Darksville for a number of years and during this time studied medicine under Dr. Robert Terrill, father of the late Dr. W. P. Terrill. After graduating in medicine he began practice in Huntsville with Dr. W. P. Terrill and remained in active practice there until the time of his death.

Dr. Barnhart had made a call at 4 o'clock on the morning of his death. He returned to bed but arose again about 6 and after breakfast went into the yard where he suffered a sudden heart attack and died instantly.

He was an active and steadfast member of organized medicine. He was known throughout the state because of his conscientious and able activity in the Association; but he was loved and revered by the profession of the state because of his excellent character and his gracious personality.

The Randolph-Monroe County Medical Society elected him their president in 1931; he was delegate to several Annual Sessions and was Councilor of the Tenth District at the time of his death.

The following resolutions were adopted by the Randolph-Monroe County Medical Society:

WHEREAS, Dr. D. A. Barnhart, Huntsville, a leader in the practice of medicine in north central Missouri, and for many years a most active, loyal and valued member of the Randolph-Monroe County Medical Society, has died; and

WHEREAS, Dr. Barnhart distinguished himself as a member of the medical profession by his earnest and patient attention to his work; his honest, fair and ethical dealings with his fellow practitioners; was admired and respected by his friends and patients; attempted to treat the rich and poor alike; distinguished himself by his active cooperation and leadership in all civic affairs; and most important of all, by his unapproachable moral character; and

WHEREAS, Dr. Barnhart's memory should be cherished and his professional virtues emulated; he it

Resolved, By the Randolph-Monroe County Medical Society that in the death of Dr. D. A. Barnhart, this Society has suffered a great loss; that he labored faithfully, patiently and diligently in behalf of his patients; assumed a fair, frank and ethical attitude toward his professional associates and was worthy of every trust reposed in him; that his ability, honesty and painstaking industry and application to his professional standards have redounded to the credit and honor of the medical profession in the State of Missouri; he it further

Resolved, That in his death this Society has lost an able physician and that the Society deeply deplores his death and extends to the hereaved family its profound heartfelt sympathy; and he it further

Resolved, That these resolutions be spread upon the minutes of this Society as a memorial of the esteem in which its departed associate was held and that a copy of these resolutions be transmitted to the hereaved family.

Dr. Barnhart is survived by his widow, Mrs. Susie Barnhart; a son, Dr. W. T. Barnhart, St. Louis; a sister, and two brothers.

OLIVER R. EDMONDS, M.D.

Dr. Oliver R. Edmonds, Tina, a graduate of Marion-Sims College of Medicine, St. Louis, 1896, died of heart disease at his home November 18, aged 70 years. He had been in poor health for four years and was confined to his bed for the last three weeks.

He was born in Alpena, Michigan, and was brought by his parents to Carroll County, Missouri, when he was 4 years old. He spent his youth on a farm near Tina. After he had completed his medical course he returned to Tina to establish his practice and from that time on followed his chosen profession in that section of Carroll County. For thirty-eight years he devoted his life to alleviating suffering in hundreds of homes. Not only were his visits welcomed because of his ability but his pleasant demeanor, natural courtesy, cultured and refined nature endeared him to the thousands with whom he came in contact.

He is survived by his widow, Mrs. Alva Edmonds, and three sons who are all physicians, Drs. G. M. Edmonds and L. C. Edmonds, Horton, Kansas, and Dr. T. W. Edmonds, Kansas City, Missouri.

HOMER E. MCGHEE, M.D.

Dr. Homer E. McGhee, Kansas City, was born near Pierre, South Dakota, November 19, 1884. When he was three years old his family moved to Kansas, where he was reared and where he received his preliminary education. He graduated from the Kansas City, Kansas, High School.

During his school career he was a baseball leader and at the age of 20 he was offered a position on a Pacific Coast team, but refused the offer and remained in Kansas City, Kansas, to take up the study of medicine in the University Medical College in Kansas City, Missouri, from which he was graduated.

Dr. Homer McGhee's father was of Irish descent and a Southerner. His mother was of English descent and from New York, a Yankee.

Dr. Homer McGhee was not affiliated with any church, but he was a Thirty-second degree Mason and a Shriner.

During the World War he joined the Navy and was stationed at the Great Lakes. He was taking care of the boys in the Navy during the flu epidemic and contracted the disease himself. He never fully recovered. He died of pneumonia on October 14, 1934, at his home, 3317 Troost.

For twenty years Dr. McGhee had a lucrative practice. He did not specialize but did general work.

His many patients were loyal to him. He made many

house calls, and when he came to his office his waiting room would be filled, awaiting anxiously for a consultation with him.—A. J. W. in the Jackson County Medical Journal.

GEORGE B. BORGELT, M.D.

Dr. George B. Borgelt, St. Louis, a graduate of the Missouri Medical College, St. Louis, 1890, died at his home, October 21, following an illness of six months, aged 70 years.

Dr. Borgelt was born in Davenport, Iowa, where he received his early education. After completing his medical education he began practice in St. Louis. He had practiced in the same vicinity in St. Louis for forty-five years.

He was a loyal member of organized medicine and also took an active interest in civic and philanthropic organizations.

He is survived by his widow, Mrs. Anna Borgelt.

OTTO L. WOLTER, M.D.

Dr. Otto L. Wolter, St. Louis, a graduate of Washington University School of Medicine, 1904, died at his home January 22, 1934, of heart disease, aged 59 years.

Dr. Wolter was born in Sheboygan, Wisconsin, and received his early education at Beaver Dam and Fergus Falls, Minnesota. As a preliminary to the study of medicine he worked in the Iowa State Hospital. After completing his medical course he interned at the St. Louis City Hospital then began his practice in north central St. Louis where he continued his practice almost to the hour of his death.

He was for a while a member of the faculty of the College of Physicians and Surgeons. During the World War he served as a member of the draft board.

Because of his ability and his gentle manner Dr. Wolter was loved and respected by his patients. He was a loyal member of organized medicine.

His profession was always paramount with him but an interest in handling real estate, which began as a hobby, became a successful business. Because of his special fitness he was chosen president of the Home Owners and Taxpayers Protective Association. This with his active medical practice was a heavy load for his physical strength.

He is survived by his widow, a daughter and three sons.

HAROLD H. GREENE, M.D.

Dr. Harold H. Greene, Jefferson City, a graduate of Harvard Medical School, 1929, died at his home in Columbia, April 8, following a mastoid operation performed in St. Louis. He was 31 years old.

Dr. Greene was born in Columbia, the son of Dr. H. W. Greene, veteran professor of physiology at the University of Missouri. Dr. Greene was well prepared for the medical career cut short by death. After attending Missouri University he went to Leland Stanford University then to Harvard Medical School. He took postgraduate work at the University of Heidelberg in Germany. After interning in St. Louis he began his practice in Greeley, Colorado. He had been in Jefferson City associated with Dr. J. S. Summers for a little over a year.

He is survived by his parents, Dr. and Mrs. H. W. Greene, Columbia; a brother, Dr. Carl Greene, Brooklyn, New York, a physician, and a sister, Miss Helen Greene, employed at the Mayo Clinic, Rochester, Minnesota.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1935

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Ste. Genevieve County Medical Society,
December 12, 1934.

ADAIR COUNTY MEDICAL SOCIETY

The Adair County Medical Society met at Kirksville, November 16, with the following present: Drs. J. Hoy Sanford and Howard A. Rusk, St. Louis; S. L. Freeman, George Grim, Ezra Grim, Ed. A. Grim, E. S. Smith, R. O. Stickler, J. W. Creed, G. F. Sneed, R. R. Ellis, J. W. Martin, J. F. Dodson, and F. B. Farrington, Kirksville; J. S. Gashwiler, Novinger; H. M. Humphreys, Brashear; Andrew Arnett, Hurdland; E. W. Hickson and J. S. Montgomery, Milan; Warner Herington, Green City; F. E. Luman, Edina; Don Pierce, Gorin; Thomas Fleming, R. D. Streeter and C. C. Smith, Moberly, and S. R. Hoover, Quincy, Illinois.

A dinner was served at the Dockery Hotel at 6:30. Following the dinner a round table discussion was held on "Do We Need an Active, Wide-Awake Medical Society for Northeast Missouri?"

Dr. J. Hoy Sanford, St. Louis, addressed the Society on "Obscure Abdominal Pain; Importance of the Urinary Tract in the Investigation."

Dr. Howard A. Rusk, St. Louis, spoke on "Obesity: Present Status and Management."

BUCHANAN COUNTY MEDICAL SOCIETY

The Buchanan County Medical Society was called to order in the Missouri Methodist Hospital December 5 by the president, Dr. W. C. Proud. Sixty-five members were present.

Drs. Riley Waller and Harry Saferstein were elected to active membership.

The following officers were elected: President, Dr. Emmett F. Cook; vice president, Dr. J. M. Allaman; secretary, Dr. O. Earl Whitsell; treasurer, Dr. John M. Bell; censor 1935-36-37, Dr. C. S. Branson; delegate 1935-36, Dr. W. T. Stacy; alternate delegate 1935-36, Dr. Albert Muench; member auxiliary committee on public policy, Dr. O. W. D. Craig, and member board of trustees until 1940, Dr. Gregg Thompson.

The Society adjourned until the annual meeting on December 19 at which time the retiring officers will present their reports and the new officers will be installed.

EMMETT F. COOK, M.D., Secretary.

CAPE GIRARDEAU COUNTY MEDICAL SOCIETY

The Cape Girardeau County Medical Society met at Cape Girardeau in the Chamber of Commerce rooms on November 12. In the absence of the president and vice

president, the secretary called the meeting to order and appointed Dr. N. F. Chostner, Cape Girardeau, president pro tem.

Members present were Drs. N. F. Chostner, J. J. Drace, J. H. Cochran and C. A. W. Zimmermann, Cape Girardeau, and W. W. Ford, Gordonville. Dr. G. J. Tygett, Paris, Illinois, was a guest.

The application of Dr. Paul Nussbaum, having been returned by the censors, was voted upon and Dr. Nussbaum was elected to membership.

Dr. W. W. Ford, Gordonville, read an instructive paper on "Scarlet Fever." In the discussion, which was entered into by all members, the greatest interest centered around the use of antitoxin. It was quite generally agreed that as long as the disease appeared in such mild form as it has in late years antitoxin might be dispensed with.

Because of the lateness of the hour it was ordered that a paper by Dr. Zimmermann be held over until the January meeting.

C. A. W. ZIMMERMANN, M.D., Secretary.

CLAY COUNTY MEDICAL SOCIETY

The Clay County Medical Society met with the Auxiliary on the evening of October 26 in Excelsior Springs. Dinner was served at the Snapp's Hotel to about thirty.

Following the dinner the members of the Auxiliary withdrew for their meeting and the business session was opened with Dr. Eugene Robichaux, Excelsior Springs, in the chair.

The president announced that he had been visited by Mr. Bartelsmeyer, Business Manager of the State Medical Association, in reference to beginning arrangements for the Annual Session to be held in Excelsior Springs this coming spring. He stated that the General Chairman for the convention would be nominated and announced by the Councilors at their meeting in November.

A letter was read from Mr. Gephart, field director of Federal Relief, in regard to pay for hospital patients. He informed the Society that he had been instructed by Washington that no doctor was to be paid for visits made upon a patient in any hospital.

Upon recommendation of Dr. J. J. Gaines, Excelsior Springs, Dr. J. E. Baird, Excelsior Springs, moved and was seconded by Dr. Y. D. Craven, Excelsior Springs, that Dr. S. D. Henry, Excelsior Springs, be elected to honor membership. The motion carried.

A suggestion was made that serious consideration be given to the appointment or election of a program committee to function throughout the year in arranging the programs of meetings. It was also suggested that monthly meetings instead of meetings every two months would be of benefit and value to the Society. Both of these suggestions were left for decision at the next meeting.

The board of censors presented the approved application of Dr. John H. Roberson, Kearney, for membership in the Society.

A symposium on "Heart Disease" was presented with the following participating: Dr. W. H. Goodson, Liberty, "Thyrototoxic Heart Disease"; Dr. Joseph Dauksys, Excelsior Springs, "Syphilitic Heart Disease"; Dr. J. E. Baird, Excelsior Springs, "Hypertensive Heart Disease," and Dr. N. R. Schumacher, Kearney, "Rheumatic Heart Disease Including Congestive Failure."

A detailed and general discussion of the four papers was participated in by Drs. J. H. Rothwell, Liberty; C. H. Suddarth, Excelsior Springs; E. C. Robichaux, Excelsior Springs; W. H. Goodson, Liberty; J. E.

Baird, Excelsior Springs, and Dr. Joseph Dauksys, Excelsior Springs.

JOSEPH DAUKSYS, M.D., Secretary pro tem.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society met at Joplin November 20 with nine members present.

Correspondence from Drs. W. G. Hogan, Neck City, and E. J. McIntire, Carthage, regarding reinstatement into the Society was read. Dr. J. R. Kuhn, Joplin, moved that the doctors be reinstated by paying the current dues and the 1935 dues. Seconded by Dr. R. E. Myers, Joplin. After discussion the motion and second were withdrawn and Dr. O. T. Blanke, Joplin, moved "due to precedent the applicants are to submit new applications accompanied by check for the dues." Seconded by Dr. Wm. Kinney, Joplin, and carried.

Dr. Ed. James, Joplin, read correspondence from the State Board of Health regarding Dr. C. G. Martin. After discussion Dr. O. T. Blanke, Joplin, moved that the Society write the Board stating that it has no jurisdiction in this case as Dr. Martin was not a member prior to his conviction. Seconded by Dr. B. E. DeTar, Joplin, and carried.

Dr. Ed. James, Joplin, read correspondence from Dr. Ellis Fischel, St. Louis, chairman of the Committee on Cancer, regarding meetings and clinics on cancer, "Cancer of the Cervix" being the subject for discussion. A motion was made by Dr. B. E. DeTar, Joplin, that the Committee be invited to present the clinic. The motion was seconded by Dr. Wm. Kinney, Joplin, and carried.

The president, Dr. Ed. James, Joplin, appointed Dr. J. W. Hardy, Joplin, as secretary in place of Dr. P. W. Walker, Joplin, for the remainder of the year.

Dr. O. T. Blanke, Joplin, presented a case of a man with pneumonia who ran a rather normal course with terminal findings of pneumococcal meningitis.

Dr. Ed. James, Joplin, reported a case of pharyngeal diphtheria in a child 13 months old who upon recovery from the diphtheria presented a 3 plus albumin and 4 plus sugar in the urine.

Dr. Wm. Kinney, Joplin, presented roentgen ray plates seen in the county tuberculosis clinic. Cases were discussed by the referring doctor.

J. W. HARDY, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

13th Annual Meeting, Atlantic City, 1935

President, Mrs. Robert W. Tomlinson, Wilmington, Delaware.

President-Elect, Mrs. Rogers N. Herbert, Nashville, Tennessee.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

11th Annual Meeting, Excelsior Springs,
May 7, 8, 1935

President, Mrs. William H. Goodson, Liberty.

President-Elect, Mrs. M. Pinson Neal, Columbia.

Adviser, Dr. J. F. Harrison, Mexico.

Since the Auxiliary Quarterly *Bulletin* with fine and interesting reports will reach state members at approximately the same time as this issue of the STATE

JOURNAL this space will bring thoughts that come from beyond the state borders, and that concern the pleasures, privileges and duties of all Auxiliary women.

From the national president, Mrs. Robert W. Tomlinson, are these comforting words:

"What have we gained, and what have we done? My feeling is that the greatest gains are the personal contacts and friendships made because of our organization and association with women whose lives are similar to our own. This alone is enough to justify our existence and continuance. Then all over the country our women are responding to the requests of their husband's medical societies, and doing well the various tasks that are theirs to meet, every effort is put forth with the approval of an advisory council. When all efforts are reported collectively, they make a remarkable total.

"If your ideals are true to those of our men and if your sincerity of purpose is strong enough, and your application to your plans and their furtherance faithful enough, we shall go far and in the right way."

To our national chairman of press and publicity, Mrs. Robert E. Fitzgerald, we are indebted for these excerpts from an address given by Mrs. Preston Hunt, president of the Texas Medical Auxiliary, to one of the county auxiliaries in her state:

"The scope of our work extends into three fields. The first is among ourselves, establishing friendships and comradeships that we may work more effectively together.

"Our second field is to gain for ourselves a more comprehensive idea of the traditions and background of the science of medicine; the code of ethics by which it has always been governed—a more intelligent and sympathetic understanding of the medical profession itself.

"Our third field extends to the laity. Our members try to prepare themselves for leadership in health work and health programs. Our national Program Department has provided valuable authentic and reliable 'study envelopes' to this end.

"To lead up to a situation which today faces all those interested in health let us review briefly the development of medical science. It has been like the growth of a mighty river gathering volume as it grew from the tiny streams of past centuries. Through this advancement we are now protected from epidemics, plagues and scourges of the past.

"The child of a century ago who had survived infancy was still confronted with smallpox, diphtheria, typhoid fever, scarlet fever, measles, tuberculosis, etc. Through medical science came knowledge of the causes and cures of these diseases. Measures of sanitation, proper sewage disposal, water and milk purification, etc., were introduced and have become necessary parts of our living.

"Now this steady progress of medicine which has brought about a high standard of health has come through organized medicine retaining its individualism and initiative, going forward according to its own ideals and ethics. . . .

"There has come a growing tendency to mass diagnosing and mass treatment in which there are dangers of which the public has not been properly warned; real dangers lurking in socialized medicine.

"Let's look at a child presenting itself for a free examination—one of a large group, usually in a public place rather than in a doctor's office. The examination is necessarily hastily made, usually without the doctor's knowing the child's background or family history, and without the full office equipment. Too often such report as is made is ignored. Or some serious trouble may be overlooked, leaving a false impression of health, till the trouble is not easily corrected.

"Such procedures are not safe for the child nor fair to the examining physician who could not do his best under the circumstances.

"Health, happiness and contentment, three of the most priceless things in life, come to us largely through our own efforts, assuming their attainment to be our own responsibility and so accepting them. Not in medicine or elsewhere can there be a good substitute for individual effort and responsibility.

"A wonderful tomorrow will be born out of today's tumult and clamor only if personal enthusiasm, personal responsibility and personal initiative are not crushed in the change."

In a letter to the women of the national Auxiliary Mrs. A. B. McGlothlan says:

"I earnestly ask the doctors to give support to the auxiliaries. I challenge the women to put into their auxiliary service those qualities that will win for them the confidence and respect of the profession and the public. May both consider seriously the possible service of the auxiliaries. With their kindly constructive criticism may the doctors give us their friendly cooperation and guidance."

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EXPERIMENTAL PRODUCTION OF FAT (PANCREATIC) NECROSIS

M. PINSON NEAL, M.D.

AND

MAX M. ELLIS, Ph.D.

COLUMBIA, MO.

Ponfick¹ in 1871 observed peculiar white areas in mesenteric and omental fat and considered them a form of degeneration. Balser² in 1882 recognized these lesions as an entity but in anatomic and microscopic studies failed to determine their cause. Their relationship to diseases of the pancreas was recognized by Fitz³ in 1889. Langerhans⁴ produced in 1890 the first experimental fat necrosis by injecting an aseptic extract of fresh rabbit's pancreas into rabbits and dogs. Since that time numerous investigators have experimentally produced the condition through various methods which induced damage to the pancreas or the pancreatic ducts, thus secondarily producing fat necrosis through the escape, diffusion, absorption, or transportation of pancreatic secretion from its normal channels. Wells⁵ produced the disease by methods similar to those of Langerhans and also by injections of commercial pancreatins.

An abundance of experimentation supports the assumption first voiced by Langerhans and repeated by others that fat necrosis is caused by the fat splitting enzyme, lipase, found in pancreatic secretions and extractives made of pancreatic tissue. Wells⁶ however failed to produce the disease by injections of lipase derived from hog's liver or cat's serum. While it was assumed that lipase was the factor in the production of fat necrosis, that assumption was unproved until our work was recorded in 1929⁷ and 1930.⁸

In 1926 when studies on fat necrosis were begun, we had the following experimental facts for our guidance:

1. Fat necrosis had been produced by injections of several extractives of the pancreas, pancreatic secretions and commercial pancreatins, by transplantation of fresh pancreas into fat containing areas, and by damaging the pancreas, its ducts, or otherwise liberating pancreatic secretions from their normal channels.

2. Bacteria had been eliminated as possible causative factors.

3. Injections of lipase from hog's liver and cat's serum had failed in its production.

4. Injections of trypsin had not produced the condition but the possible action of this ferment in connection with pancreatic lipase in the production of fat necrosis had not been eliminated.

To these should be added a general belief that lipase causes fat splitting after some other ingredient of the pancreatic juice, possibly trypsin, has injured the cells. Fat necrosis, then, had not been produced except by products obtained in some way from the pancreas, and these presumably contained lipase, trypsin and possibly other enzymes. In attempting to determine the active cause of the condition our immediate problem was to obtain pure enzymes. With no method available for isolating pure lipase from pancreatic juice, pancreas, or pancreatic extract, our attention was directed to sources of obtaining lipase free of tryptic enzyme properties. For this reason we turned to vegetable materials to search for this substance.

SOURCE AND PREPARATION OF THE MATERIAL

Preliminary to injections of the various extractives prepared by one of us (M. M. E.) we injected into several types of vertebrates commercial pancreatin and pancreatic secretion obtained from cannulated pancreatic ducts of dogs. In every instance where these substances were used typical fat necrosis was produced.

Lipase from Vegetable Seeds.—Many plant seeds are rich in oils and the presence of lipase in these oil bearing seeds has often been demonstrated. Falk^{9, 10} in a series of chemical investigations (1913, et seq.) prepared lipase fractions from the seed of the common castor

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bean, *Ricinus communis*. We then used the seeds of this plant, the seeds of the common sunflower, *Helianthus annuus*, those of the unroasted Virginia peanut, *Arachis hypogaea*, and the Chinese soybean, *Glycine hispida*, for our source of material.

In each case the dried seeds were chosen and a lipase fraction prepared in general after the method used by Falk in his *Ricinus* work. The seeds were first carefully hulled and the silvery test removed from the kernel. The cotyledons were then separated, the embryo removed, and the cotyledons reduced to a fine grained, oily mass in a grinder. The mass was refluxed for several days in a Soxholet with a specially prepared redistilled ether. This procedure yielded a fine, grease-free, whitish flour which, after the ether was blown off, was easily removed from the hulse in the Soxholet. This flour was ground to an impalpable powder in a mortar and returned to the Soxholet for an additional refluxing in ether for several days. After this refluxing the powder, freed from ether, was mixed with normal saline and this suspension when injected into white rats was found capable of producing fat necrosis.

To check the active principle in these potent fractions derived from plant sources, ethyl butyrate lipase tests were made by the Loevenhart method¹¹ and postive results obtained. The potency of these flours in producing fat necrosis was destroyed by heating above 70° C., by strong acids, strong alkalis, and by treatment with ethyl alcohol of above 50 per cent. These substances were of a colloidal character; that is, were not dialyzable through celloidin sacks. They were not injured by ether or toluene when used as preservatives, and were reasonably stable in the dry powder form. They did not digest protein nor give any finding for trypsin or other proteolytic enzyme.

Since the castor bean contains a highly toxic substance, ricin, its extractives are unsuited for wholesale animal experimentation. Because of the freedom from such toxic material and the larger size and ease with which the peanut seed can be handled preparations from this source were used in most of our experiments.

Large doses of the flour suspended in normal saline were necessary to produce the lesions; and since other contained substances often caused inflammatory reaction the concentration of the peanut extractives was carried further. The flour as extracted in the above procedure was mixed with glass distilled water, incubated at 30° C. for 2 hours, and the supernatant liquid centrifuged off. This fluid was found to be active in the production of fat necrosis. The potency per volume could be increased by reducing to dryness under reduced pressure at

room temperature and redissolving in small quantities of fluid. As the extraction of the flour with water necessarily removed various water-soluble substances from the flour, still further purification was accomplished by dialysis. Falk found that the lipase fraction from *Ricinus* did not pass through the membrane. Samples of the water extract of the peanut (*Arachis*) flour which had been concentrated under reduced pressure at room temperature were placed in celloidin sacks and dialyzed for several hours against distilled water. The resulting material left in the celloidin sacks was potent in the production of fat necrosis. When evaporated to dryness under reduced pressure at room temperature it gave the most potent preparation in proportion to the amount required for injection and the certainty with which it produced fat necrosis.

Lipase from Animal Tissue Sources.—Having obtained a fat necrosis producing substance from vegetable sources recognized as lipase and answering the physical and chemical requirements of such it was desirable to ascertain if such substance could likewise be obtained from liver, pancreas, and pancreatins. We therefore made extractives of fresh hog's pancreas, fresh hog's liver, and pancreatin.

Using these various sources of material there was followed a routine process of extraction; for example, using liver, this organ was taken fresh from the animal and thoroughly hashed in a sterile meat grinder. The hash was mixed at once with the extraction fluid and transferred to large pyrex flasks which were kept at about 10° C. during the extraction period. Two extraction processes were used; one the "acid series" and the other the "alkaline series." In both instances ether was added, first to separate the ether soluble fractions and, second, to prevent bacterial decomposition.

Extraction of Liver Hash.—A. One liter of 2.5 per cent hydrochloric acid added to 1000 gm. of hash; 500 cc. of redistilled ether added to this mixture; extraction in cold (circa 10° C.) for 18 hours (acid series).

B. Fluid drained off from A after 18 hours and placed in separatory funnel, by means of which an ether fraction and an aqueous fraction were recovered.

C. Ether fraction from B placed in evaporating dish and ether blown off with electric fans at room temperature (circa 20° C.); the greasy mass obtained was reextracted with fresh ether.

D. Clear ether extract (second extraction) from C; ether blown off as above; an oily residue obtained; *not potent* in production of fat necrosis when injected into white rats.

DD. Reddish aqueous but greasy fluid left after separation of ether extract (second ex-

traction) from C; *potent* in production of fat necrosis when injected in large quantities.

CC. Aqueous fraction from B; ether blown off at room temperature; turbid fluid centrifuged and the clear fluid saved; *very potent* in production of fat necrosis.

E. To clear fluid obtained by centrifuging CC, 95 per cent alcohol was added to make the total 60 per cent alcohol; a precipitate resulted; fluid centrifuged and both residue and supernatant fluid saved.

F. Supernatant fluid from E evaporated under reduced pressure at room temperature to one third original volume; removal of the alcohol resulted in the separation of a coagulum from a clear fluid.

G. Clear fluid *not potent*.

GG. Coagulum *not potent*.

FF. Residue from E evaporated to dryness under reduced pressure at room temperature; dry residue taken up in normal saline and the cloudy mixture centrifuged; both clear fluid and residue saved.

H. Clear fluid from FF *not potent*.

HH. Residue from FF *not potent*.

EE. Clear fluid from CC evaporated to dryness under reduced pressure; taken up in normal saline *very potent* in production of fat necrosis.

AA. One thousand gm. of similarly prepared hash was made alkaline to litmus; that is, brought to a pH of 8 or more with a dilute sodium hydroxide and distilled water in quantity to make the total volume of fluid added 1 liter. Mass well mixed and 500 cc. of redistilled ether added; the whole shaken in a 5 liter pyrex flask; extraction in cold for 18 hours, and the steps carried out identically as for the acid series.

The same fractions in the alkaline series as in the acid series were *potent* in the sense of their ability to produce fat necrosis in white rats.

From the extractives separated in the acid and in the alkaline series it was found that the fat necrosis producing fraction was not soluble in ether; that it was readily destroyed by ethyl alcohol of above 50 per cent strength and was extracted equally well by both acid and alkali media. Heat above 70° C. destroyed the active agent as did strong acids and strong alkalis; but the addition of toluene or ether as preservatives did not damage the potency of the substance when held at ice box temperatures for as long as three days. Samples of the various extracts yielding the potent fat necrosis producing substance uniformly showed the presence of lipase by the Loevenhart ethyl butyrate test. They did not digest protein nor give other reaction for trypsin.

Experimental Findings.—In the course of

these experiments the various extractives obtained from animal and vegetable sources have been injected intraperitoneally into 625 animals; including white rats, *Mus decumanus*; dogs, *Canis familiaris*; cats, *Felis domestica*; turtles, *Macroclamys pseudo-geographica*, the geographic turtle, and *Chrysmes belli cinerea*, Bell's painted turtle; fish, *Lepisosteus platystomus*, the short nosed gar, and *Cyprinus carpio*, the German carp; chickens, *Gallina domestica*; pigeons, *Columba livia*; and water dogs, *Necturus maculatus*.

Fat necrosis has been produced in the omental, mesenteric, perirenal and peritesticular or periuterine fat in representatives of all these groups; that is, in both cold blooded and warm blooded vertebrates except the water dog, where we have had no success with five test animals which were found almost devoid of body fat. These results, with a description of the lesions, have been presented elsewhere^{7, 8} but a summary here is pertinent. Fat necrosis has been produced with equal ease using material from both plant and animal sources, without there being any evidence of species specificity in the reactions of the active principle producing the fat necrosis.

The lesions have been observed at periods of time varying from 6 hours to 13 days following the injections. At the end of 6 hours typical histologic changes have been observed, but no gross lesion has been found under 16 hours nor on or after the 17th day. After 6 days the foci have all shown reparative changes dominant and especially the ingrowth of or encapsulation by fibrous tissue. On the 13th day histologic findings were of almost healed processes.

The biological evidence, taken with the chemical characteristics of the potent fractions used, strongly suggests that a lipase in the lipase carrying fraction produces the fat necrosis. It does not follow that under conditions in which both proteolytic and lipolytic enzymes are present that the proteolytic enzymes may not contribute to the production of fat necrosis, but fat necrosis was produced experimentally in these studies by the injection of purified fractions apparently containing no proteolytic enzyme and known to be rich in lipase.

Spontaneous Fat Necrosis in Animals.—Horvath and Chang¹² have reported that prolonged feeding and overconsumption by rabbits of raw soybeans which are rich in lipase produce a rise in blood serum lipase, and on killing these animals, they discovered in the perirenal fat a necrosis which, from their description, is fat necrosis. Autoclaved or cooked soybeans which had lost their lipase according to the ethyl butyrate test, fed to like animals and in similar

quantities gave no such results, thus showing that the activating substance was destroyed by heat. Horvath¹³ noted similar necrotic areas in the perirenal fat, and sometimes in the subpleural fat of beef cattle in northern China that had been fed heavily on soybean cake and black soybeans. In both instances the authors interpreted the lesions as fat necrosis, and the fact that rabbits fed on cooked soybeans did not show the necrosis is very suggestive as to the cause. Horvath¹³ did not observe the condition in Mongolian cattle fattened on grass. Their observations at least show that a disturbance in the lipase balance and this presumed fat necrosis may occur simultaneously and, in view of our experimental work, point to lipase as the causative factor.

Clinical Fat Necrosis in Man.—The literature contains many case reports dealing with fat necrosis occurring in conditions where there were damages to the pancreas, the pancreatic ducts, or large blood vessels leading to or from this organ. Traumatic injuries and wounds as they occur from various causes where the pancreas or its ducts are involved regularly cause the condition in the fat of the adjacent omentum and mesentery, and where there is damage to the abdominal wall, lead to wounds very difficult to heal. Inflammations and malignancies of the pancreas, stones in the pancreatic ducts, and parasites, particularly the *ascaris lumbricoides*, which have crawled up from the duodenum, have been found as causes for the escape of pancreatic secretions from their normal channels.

Clinical Significance and Results of Fat Necrosis.—The presence of fat necrosis in the intra-abdominal fat or in wounds of the abdominal wall indicates a damage either to the pancreas or a pancreatic duct. The fat necrosis then is a secondary and not a primary lesion. In experimental animals we have found all stages of the lesion up to complete repair. In the human subject at autopsy, or in cases where a second surgical procedure is necessary within the abdominal cavity after fat necrosis had been observed at a previous operation, one may find repair even to a complete disappearance of previous such areas. The fat necrosis, then, is not in itself a serious or fatal lesion, but the condition which precedes it; that is, the damage to the pancreas or its ducts, often is fatal.

Controls.—In the experimental work every reasonable animal and chemical control has been used to prove that we were dealing with a purified lipase fraction, and that the various extractives employed were not capable in themselves of producing these changes. Injections of the extractives of pH values even beyond the ranges employed have failed to produce the condition. Histologic examinations of all ma-

terial were done, irrespective of the gross findings, as a means of eliminating false interpretations, as postmortem changes, and to prove that pancreatic lesions were not responsible for the changes.

SUMMARY

1. Experimental fat necrosis has been produced by the injection of:
 - A. Commercial pancreatins.
 - B. Pancreatic secretions from dogs.
 - C. Purified and concentrated lipase fractions derived from
 - (a) animal sources; as fresh hog's pancreas, fresh hog's liver, and commercial pancreatin; and
 - (b) vegetable sources; as the seeds of the common sunflower, *Helianthus annuus*; the Virginia peanut, *Arachis hypogaea*; the castor bean, *Ricinus communis*; and the Chinese soybean, the *Glycine hispida*.
2. The various lipase fractions possessed physical and chemical properties characteristic of enzymes in that:
 - A. They were not thermostable.
 - B. They were inactivated by ethyl alcohol in strengths above 50 per cent, strong acids and strong alkalis.
 - C. They decomposed ethyl butyrate.
3. The highly purified fractions were colloidal in character and were globulin-like.
4. The lipase containing fractions showed no species specificity for animals in their ability to produce fat necrosis, as evidenced by the fact that the lesion has been experimentally produced in the following vertebrates in which the body temperatures ranged from 18° to 43° C.:
 - A. Cold-blooded:
 1. Fish: a. *Cyprinus carpio*, the German carp; b. *Lepisosteus platystomus*, the short nosed gar.
 2. Turtles: a. *Chrysemys belli cinerea*, Bell's painted turtle; b. *Macroclmys pseudogeographica*, the geographic turtle.
 - B. Warm-blooded:
 1. Birds: a. *Columba livia*, the street pigeon; b. *Gallina domestica*, the domestic hen.
 2. Mammals: a. *Canis familiaris*, the common dog; b. *Felis domestica*, the domestic cat; c. *Mus decumanus*, the white rat.
 5. Clinical fat necrosis goes through a normal process of repair and is not a fatal lesion, but the condition which precedes it and is responsible for it; that is, the damage to the pancreas or its ducts, often is fatal.

University of Missouri.

BIBLIOGRAPHY

1. Ponfick, E.: Virchow's Arch. **56**:534, 1872.
2. Balser, W.: Virchow's Arch. **90**:520, 1882.
3. Fitz, R. H.: Med. Rec. **35**:197-225, 1889.

4. Langerbans, R.: *Virchow's Arch.* **122**:252, 1890.
5. Wells, H. Gideon: *Experimental Fat Necrosis*, *J. Med. Res.* **9**:70-116, 1903.
6. *Ibid.* pp. 93-97 and 115.
7. Neal, M. Pinson, and Ellis, Max M.: *Etiological Factor of Fat Necrosis*, *Southern M. J.* **23**:313-320, 1930.
8. Neal, M. Pinson, and Ellis, Max M.: *Experimental Fat Necrosis in Various Vertebrates*, *Am. J. Clin. Path.* **1**:251-263, 1931.
9. Falk, K. G.: *J. Am. Chem. Soc.* **35**:601, 1913.
10. Falk, K. G.: *J. Biol. Chem.* **31**:97-123, 1917.
11. Loevenbart, A. S. Described by Whipple, G. H.: *A Test for Hepatic Injury: Blood Lipase*, *Bull. Johns Hopkins Hosp.* **24**:357-362, 1913.
12. Horvath, A. A., and Chang, H. C.: *The Effect of Soybean Feeding on the Blood Lipase of Rabbits*, *Am. J. Physiol.* **78**:224-234, 1926.
13. Horvath, A. A.: Quoted by Horvath and Cbang, *Ibid.* p. 232.

THE INFLUENCE OF PNEUMOTHORAX TREATMENT ON THE PROGNOSIS OF TUBERCULOSIS

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AND

CHARLES W. EHLERS, M.D.

ST. LOUIS

Since the days of Hippocrates, rest, fresh air, and diet have been the fundamental measures employed by the medical profession in the treatment of pulmonary tuberculosis but not until the middle of the nineteenth century was a scientific and systematic attempt made to carry out these agencies. In 1859 Dr. Brehmer,¹ a German physician, first introduced the idea of sanatorium treatment. Since that time, no greater advance has been made which offered more hope to the sufferer from tuberculosis than the advent of artificial or induced pneumothorax therapy. James Carson² of Liverpool in 1821 was probably among the first to recommend its use on theoretical grounds. In a series of essays on the physiology of the lungs he pointed out the advantages to be derived from this procedure. During the next fifty years practically nothing appears in the literature pertaining to this subject. In 1880 Touissaint³ and notably Forlanini⁴ in 1882 advocated its introduction. Potain⁵ in 1884 actually treated a case of spontaneous hydro-pneumothorax by replacing the fluid with sterilized air on repeated occasions. He treated two other cases in a similar manner and reported them in 1886. In 1885 Cayley⁶ treated a case of severe hemoptysis in phthisis by open incision of the chest wall with gratifying results. In 1888 Forlanini⁷ began to treat some cases and made reports

of them in 1894 and 1895. J. B. Murphy⁸ of Chicago in 1898 advocated its use and treated five patients, employing in his operation a trocar and cannula. In 1904 Saugman⁹ introduced the water manometer. Finally, in 1906 Forlanini¹⁰ reporting the favorable results of his experience with this method, published his paper, which at that time was not given by the medical profession the full recognition to which it was entitled.

It was not until a decade later, or during the last eighteen years, that this procedure, which offers to the patient the greatest hope of recovery, became fully recognized as a great step forward in the treatment of this disease. This belated recognition was probably due to two factors; (1) the failure at that time on the part of the general profession to diagnose tuberculosis in the early stages, (2) the lack of the universal use of the roentgen ray.

Today these factors do not obtain because of the widespread dissemination of our knowledge of tuberculosis, both to the laity and to the medical profession. The diagnosis of this malady is made much earlier and more frequently than formerly. Then too, the development and almost universal employment of the roentgen ray by the profession and the hospitals has materially aided in the diagnosis and has become a necessary and valuable adjunct in pneumothorax therapy. The fact that nowadays no physician would consider a diagnosis of pulmonary tuberculosis complete without the use of roentgen ray films as an integral part of a complete history gives the diagnostician a better understanding of the pathology present, and enables him to visualize more clearly the type of treatment which may in a given case be productive of the most satisfactory results.

If, then, we wish to evaluate the influence of pneumothorax treatment on prognosis in pulmonary tuberculosis we must of necessity consider the conditions in which this therapy is applicable. If cases are not well selected the results obtained will not be a true criterion of its value as a therapeutic measure. For this reason we will enumerate the conditions in which artificial pneumothorax has a justifiable application, based on the consensus of opinion of a vast majority of workers in this field as shown in a review of the literature and in our own experience during the last five years.

(A) In all unilateral cases, if (1) there are constant rales to be heard over an area corresponding to two ribs or intercostal spaces

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or more with positive sputum and roentgen ray findings; (2) the disease is acute; (3) in spite of rest in bed, the activity persists or improvement is not satisfactory; (4) the patient for any reason is unable to undergo prolonged hospitalization; (5) there is repeated or severe hemoptysis or hemorrhage; (6) there are cavities with copious sputum; (7) certain complications, such as tuberculous laryngitis, should be present; (8) there is massive atelectasis or massive fibrosis.

(B) In bilateral cases the same indications are employed, influenced somewhat by the condition in the contralateral lung.

In reviewing the literature of the last fifteen years we find numerous reports based on statistical evidence of the beneficial effects of pneumothorax. Saugman and Brauer¹¹ report that out of 310 far advanced cases 74 or 33.9 per cent were fit for work; after the first year's treatment 42 per cent and from the fifth to tenth year 30 per cent. This covers the period of 1907 to 1918. Moreover, Saugman stated that he did not know of any other treatment that gave third stage sputum positive cases 33 per cent chance of being able to work after seven years. Dumarest¹² states that in 209 cases up until 1923 he obtained favorable results in 129 or 56.3 per cent, and unfavorable in 100 cases, or 43.7 per cent. Bonzoni¹³ has collected statistics of 3680 cases treated from 1916 to 1925, including 71 cases under his own observation. Of this total 25 per cent were described as cured, 27.1 per cent as improved and 31.2 per cent as dead. Noveau¹⁴ collecting results from 570 cases of fibrocaceous tuberculosis from Rist's clinic found 31 per cent clinically cured, 17.5 per cent improved, 17.5 per cent stationary and 34 per cent unimproved and dead. The Matsons¹⁵ among 423 cases of fibrocaceous and fibrocaceous cavernous cases obtained results which are closely similar; namely, 32 per cent clinically cured and 20 per cent arrested, 16 per cent unimproved and 32 per cent dead. Again the Matsons and Bisaillon¹⁶ stated that the most favorable cases, fibrocaceous disease without cavitation, gave some 40 per cent clinically well and 16 per cent arrested, while similar figures for caseous pneumonic tubercle dropped to 23 per cent and 3 per cent respectively. Maendl¹⁷ also found that in a follow-up of 172 of his own cases a lasting result was obtained in 49 per cent. Hodson and Johnson of London¹⁸ report in 1932 a series of 55 cases in which 34 remained free of symptoms and

were either in actual employment or fit to work.

Finally, in the September, 1932, issue of the *Tubercle*, G. Hurrell¹⁹ reported a series of 149 cases from 1923 to 1928, out of which 102 were successful, 75 per cent being between the ages of 15 and 20 years. All patients had tubercle bacilli in the sputum and very few were early cases. Of the successful pneumothorax patients, 29.4 per cent are still alive and of the unsuccessful only 1.06 per cent.

Our own experience with this treatment at the Mt. St. Rose Hospital, over a period of five years from 1929 to 1933 inclusive, is strikingly similar to the statistics above quoted as to the favorable results obtained. Out of a total of 1156 admissions during this five year period, 185 received artificial pneumothorax, a percentage of 16.01 per cent. This low average can be attributed to the fact that practically 96 per cent of our patients are in the second and third stages of the disease when admitted to the hospital. The diagnosis of these 185 cases at time of beginning of treatment is shown in table 1.

Table 1. *Diagnosis in 185 Cases at Time of Beginning of Pneumothorax Treatment*

| | | |
|------------------------------------|------|-------------------------|
| Minimal type | none | |
| Moderately advanced bilateral.... | 14 | } (total 45 or 24.32%) |
| Moderately advanced unilateral.... | 31 | |
| Far advanced bilateral..... | 87 | } (total 128 or 69.20%) |
| Far advanced unilateral..... | 41 | |
| Tuberculous pneumonia | 8 | (or 4.32%) |
| Atelectasis | 4 | (or 2.16%) |

Table 2. *Incidence as to Sex*

| | | |
|-----------------------------------|-----------------|----------------|
| Males | 51 or 27.57% | |
| Females | 134 or 72.43% | |
| <i>Incidence as to Age Period</i> | | |
| Up to 20 years | 20 to 30 years | 30 to 40 years |
| 35 or 18.92% | 85 or 45.95% | 41 or 22.17% |
| 40 to 50 years | 50 years and up | |
| 21 or 11.35% | 3 or 1.61% | |

Table 3. *Indications for Pneumothorax Treatment in 185 Patients*

| | | | |
|---|----|---------------------------|----|
| Cavitation | 61 | Unilobar unilateral cases | 10 |
| Stationary | 49 | Atelectasis | 4 |
| Hemorrhage | 35 | Spontaneous pneumo- | |
| To continue treatment... 10 | | thorax | 2 |
| Severe toxemia (or acute illness) | 21 | Diagnostic | 1 |
| | | Relief for pleurisy..... | 1 |
| <i>Most Frequent Complications Present at Time of Treatment</i> | | | |
| Tuberculous enteritis.... | 24 | Syphilis | 6 |
| Tuberculous laryngitis... 14 | | Hyperthyroidism | 4 |
| Spontaneous pneumothorax | 2 | | |

Table 4. *End Results Obtained*

| | | |
|--------------------------|--------------|------------------------|
| Arrested and working.. | 73 or 39.46% | } (total 88 or 47.57%) |
| Arrested and not working | 15 or 8.10% | |
| Improved | 35 or 18.92% | } (or 123 or 66.49%) |
| Unimproved | 8 or 4.33% | |
| Dead | 54 or 29.19% | |

Table 5. *Types of Pneumothorax Established and Results Obtained*

| | Number of Cases | Improved and Arrested Cases | Unimproved | Dead | Sputum | |
|------------------------------------|--------------------|--------------------------------|------------|----------------------------------|-----------|-----------|
| | | | | | Negative | Positive |
| Selective | 46 | 46 or 100% | 0 | 0 | 31 or 67% | 15 or 33% |
| Complete | 39 | 30 or 77% | 1 or 2% | 8 or 22.8% | 21 or 54% | 18 or 46% |
| Incomplete | 100 | 47 or 47% | 7 or 7% | 46 or 46 % | 46 or 46% | 54 or 54% |
| Average hospital stay..... | | 12.3 months | | Minimum period of treatment..... | | 1 month |
| Average duration of treatment..... | | 9.4 months | | Maximum period of treatment..... | | 40 months |

COMMENT

From an analysis of the foregoing tables, what inferences or deductions are we logically entitled to make? Today it is universally conceded that the earlier a patient is given the benefit of pneumothorax therapy the more satisfactory are the end results. Most observers state that the maximum benefits are obtained in the early cases; in our series we have no patients under that classification. Our most favorable ones were the unilobar and unilateral cases with cavitation. These amounted to only ten. All the others were moderately or far advanced. Despite this fact we were able to obtain in our series of 185, 73 or 39 per cent who became completely arrested, with negative sputum and able to resume some form of work. Another 15 or 8.1 per cent were arrested but are at present not working. This makes a total of 88 arrested cases who would otherwise never have recovered, representing a percentage of 47.57 per cent. The fact that 8 or 4.33 per cent remained unimproved and 54 or 29.19 per cent died is no reflection on this form of treatment. It merely implies that pneumothorax therapy was given too late in the course of the disease to be of benefit. It imparts to us the lesson that it is advisable to make our diagnoses earlier and to apply this remedy at the time when the disease process has not advanced too far. Even in cases where the end results are not completely satisfactory this method is a life saving measure, especially when there are recurrent hemorrhages, or when in spite of bedrest the patient continues to run an acute progressive toxic course.

CONCLUSIONS

The best results are obtained in the unilateral group when there are no adhesions to interfere, and in bilateral cases with less than a third of the contralateral lung involved. The immediate effects are compression and rest of the diseased lung. Resulting from this we have in many instances closure of cavities, stimulation of fibrosis and reduction in the amount of the area involved. This treatment also has a marked

effect on the temperature and sputum; 98 or 53 per cent of our cases were converted from positive to negative sputum and 123 or 66 per cent became afebrile. The effect of pneumothorax on the contralateral lung in bilateral involvement is very frequently favorable, as shown in our series.

When we realize that artificial pneumothorax in the past has seldom been induced in a patient who has early disease and appears to be getting on well it becomes more and more apparent that this procedure undoubtedly influences favorably many cases where otherwise the patient would be subjected to a long lingering illness and prolonged treatment with little prospect of being ultimately restored to health.

In conclusion, permit us to quote the following statement made by Allen Krause²⁰ a number of years ago: "All in all, artificial pneumothorax represents by far the greatest advance yet made in the special treatment of pulmonary tuberculosis. Time brings no dimming of its repute. Enlarging experience only adds to its lustre. Experience suggests also that its scope will enlarge: that after ten years of trial and experiment we are settling down into a period of its more intelligent employment which will lead to its further development.

University Club Building.

BIBLIOGRAPHY

1. Huber, John B.: Consumption and Civilization, 1906, p. 294.
2. Carson, James: Essays Physiological and Practical, Liverpool, F. B. Wright, 1822, pp.3-5.
3. Riviere, Clive: Pneumothorax and Surgical Treatment of Pulmonary Tuberculosis, 1927, p. 4.
4. Forlanini, C.: A Contribuzione della terapia chirurgica della tisi oblatione del polmone? Gazz. d. osp. August, September, October and November, 1882.
5. Riviere, Clive: Pneumothorax and Surgical Treatment of Pulmonary Tuberculosis, 1927, pp. 4 and 245.
6. Cayley, W.: A Case of Hemoptysis Treated by the Induction of Pneumothorax so as to Collapse the Lung, Clin. Soc. Trans. 18:278, 1885.
7. Forlanini, C.: Prima tentativi di pneumotorace artificiale nella tisi pulmonaro, Gazz. med. di Torino 65:381-401, 1894.
8. Murphy, J. B.: Surgery of the Lung, J. A. M. A. 31:151, 208-281, 1898.
9. Riviere, Clive: Pneumothorax and Surgical Treatment of Pulmonary Tuberculosis, 1927, p. 5.
10. Forlanini, C.: Apparate und operationstechnik fur den Kinstlichen Pneumothorax, Deutsche. Med. Wchnschr. 37:2313, 1911.
11. 12. 13. 14. 15. Riviere, Clive: Pneumothorax and Surgical Treatment of Pulmonary Tuberculosis, 1927, pp. 233-234.
16. Matson, R. W.; Matson, R. C., and Bisailon, M.: End Results of 600 Cases of Pulmonry Tuberculosis Treated by Artificial Pneumothorax, Am. Rev. Tuberc. 9:294, 1924.
17. Riviere, Clive: Pneumothorax and Surgical Treatment of Pulmonary Tuberculosis, 1927, pp. 233-234.

18. Hodson, V. S., and Johnson, R. S.: Artificial Pneumothorax, *Lancet* 2:787 (Oct. 8) 1932.
 19. Hurrell, L. S. T.: Recent Advances in Pulmonary Tuberculosis.
 20. Krause, Allen K.: Essays on Tuberculosis. 41. Special Forms of Treatment: Artificial Pneumothorax, *J. Outdoor Life* 22:180, 1925.

DISCUSSION

DR. W. W. BUCKINGHAM, Kansas City: I enjoyed Dr. Mudd's talk and his pictures very much. The general practitioner seems to think when we speak of surgery in tuberculosis that we think only of two operations: thoracoplasty, and surgery of the phrenic nerve. The thoracic surgeon of today has many operations and combinations of operations that will bring about the desired collapse of the lung. We are not rushing into the more severe surgical procedures now as we used to do. We are starting our cases by doing the least severe surgical collapse that will bring about the desired result, which is closure of the cavity and negative sputum. After a short trial of that procedure, if it does not accomplish the result, we go ahead with the next operation, which is probably a little more severe but which we hope will accomplish the result.

From the surgical standpoint I am much interested in Dr. Mudd's moving pictures, especially the length of the incision. We have never had any trouble with the movement of the arm, but I take out a much greater length of the first, second and third ribs than what I was able to see in his pictures. I think if the operation is going to be undertaken by the general surgeon certain rules should be laid down. We never do a thoracoplasty, no matter how good the condition of the patient, in two stages. I would rather do it in three stages maybe four if necessary, and do one or two ribs at a time. Our mortality is lower since we do it in three or four stages.

I want to thank Dr. Mudd for his very interesting presentation.

DR. L. E. WOOD, Kansas City: I think there is no question now that compression therapy is the most valuable remedy we have in the treatment of tuberculosis; if it is indicated it should be as nearly complete as possible. This has several advantages over partial compression or selective compression. The patient will become symptom free sooner. With selective compression you have, occasionally at least, an obliterating pneumothorax due to the formation of adhesions that gradually pull the lung out.

We have undoubtedly in the past made an error in not continuing the pneumothorax treatment long enough. Gardner's experimental work with tubercle bacilli of lower virulence, which would produce definite lesions but not death, showed it required about two years for these lesions to heal. So certainly if a strain of bacilli of sufficient virulence to incapacitate a human being, the minimum must be something above two years, and I think perhaps five would not be too long.

DR. SAM SNIDER, Kansas City: I have enjoyed the papers very much and was much pleased with Dr. Mudd's incision for thoracoplasty. I am a little inclined to be more radical than he, say in a case of unilateral tuberculosis that does not do well after two or three months of bed rest. It is very necessary to get a cavity closed promptly, for the longer it stays open the greater is the chance of an unhealed lesion.

I think selective thoracoplasty is sufficient in most cases, and they are most favorably inclined if there are adhesions.

I believe in earlier operation than we have been doing because thereby we can lessen some of the disease in other individuals. I believe further that the compression in most cases should be kept up long enough. A well-known authority says less than five years is

likely to be too brief and longer than five years is too long. Pneumothorax has come to stay and the more of us who do it and the better it is done the more quickly will we control our tuberculosis problems.

DR. JAMES L. MUDD, closing: I want to thank Dr. Buckingham and Dr. Wood for their discussion. As Dr. Buckingham pointed out, thoracoplasty and pneumothorax are not the only surgical procedures we have. They are many and varied for they must be made to fit the case in question.

As to the size of the segments removed, I agree thoroughly with Dr. Buckingham that the sections should be large. If any of you read Fishberg's unfavorable report as to the results of thoracoplasty and analyzed his cases you will find he was not speaking of the modern perivertebral thoracoplasty; he was talking about the old operation in which we took out small sections, and of course the results were not what we may expect today.

Regarding the height of the incision, I have never extended the incision any higher. I have been taught that the incision should not extend above the spine of the scapula for the reason that there is danger of injuring the nerve supply. It would be much easier to expose the rib if you did extend the incision higher. I may have the courage to try it some time.

In regard to Dr. Wood, I think Dr. Henske pointed out that adhesions prevented the collapse of the cavity but it did get larger under pneumothorax treatment.

DR. ANDREW C. HENSKE, St. Louis, closing: I might mention that a few months ago a patient was referred to our institution from the Trudeau Sanitarium at Saranac Lake. A letter said the woman had been receiving pneumothorax for about eight months and was completely collapsed. The intervals were about two weeks apart and it was three weeks since she had had one. On investigation we found it was selective pneumothorax; that she had an upper lobe lesion on one side, and while the lung was collapsed during the time of treatment at Saranac, during the three weeks since the treatment the healthy lobe had begun to reexpand. We kept up the selective type of pneumothorax.

There is no argument about the advantage of selective pneumothorax in unilateral involvement, for this reason, viz: you can get just as good results with complete pneumothorax, but the argument in favor of the selective type is that you retain the function of the healthy lobe. Why submit the patient to the disuse of the entire lung when the pathology indicates merely combating the infection in one lobe. In other words, we believe it is the same principle used by the conservative surgeon when he does any operation. He tries to conserve the healthy tissue and not destroy it if it can be avoided. So in these cases we first get complete collapse of the lung. That is essential because it takes anywhere from six weeks to three months to permit Nature to bring about complete regenerative changes in the diseased portion of the lung. We know from experience that it takes less air pressure to keep a diseased lobe compressed than it does a healthy lobe. The resiliency is impaired and the pressure necessary is far less than required in the healthy lobe.

THERAPEUTIC EXERCISE

In their second and concluding article on therapeutic exercise J. S. Coulter and C. O. Molander, Chicago (*Journal A. M. A.*, Jan. 19, 1935), give both passive and active therapeutic exercises for the elbow joint, for the hand and wrist, for the hip joint, for the knee joint and for the foot and ankle. Occupational therapy is also given for the elbow, wrist and hand.

AMEBIASIS

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Last year, the subject of amebiasis was brought to our attention rather forcefully by an outbreak at the Worlds Fair with much attendant publicity. This was beneficial in that a common, important disease that has been relatively neglected in all but a few centers of the United States has come under proper consideration. It is acknowledged wherever careful investigations have been made that at least 10 per cent of the people of this country harbor *Endameba histolytica*, and that infestation with this organism invariably means ulceration of the colon. At this time, several features of clinical interest may be pointed out.

The term, amebiasis, indicates infection of the human body with the pathogenic protozoon, *Endameba histolytica*. The term, amebic dysentery, is misleading as a title in that it suggests only one phase of the disease, a symptom that is present in less than 10 per cent of those found harboring the organism. Cardinal symptoms of amebiasis are distinctive by their absence; and suspicion may be aroused only with the development of peritonitis as a result of perforation of the colon, or with the expectoration of quantities of gray pus when a hepatic abscess ruptures into the bronchial tree. These symptoms and dysentery are indicative of critical stages of the disease and diagnoses should be made before they appear.

As a listed cause of death in the Missouri valley amebiasis is rare. It has been considered a tropical disease; but as a primary cause of death in Central America and the West Indies it can hardly be described as common. However, where medical men are acquainted with it and are continuously on the alert for its presence it is found consistently, both antemortem and postmortem, as a direct and as a contributory cause of sickness and of death.

Recognition of the disease depends upon regular examination of the rectal discharges of all patients with symptoms referable to the alimentary tract. These tests are at least as deserving of routine application as are urine analyses and Wassermanns. The work is disagreeable, somewhat exacting, and special technical training is essential. Properly carried out, uncontaminated specimens that have not lost the body heat are subjected to time-consuming microscopical

observation. Objects encountered that arouse suspicion usually must be put through a process of fixing and staining comparable to that involved in the paraffin preparation of tissues for histological study.

Dr. James at the Panama Hospital has determined with expert technic that *Endameba histolytica* is recoverable at a single examination in 75 per cent of infected individuals. Of these, in 50 per cent the diagnoses are based upon the presence of trophozoites or motile forms alone. A second examination increases to 90 per cent the total number of cases recognized. While six separate and distinct examinations under varying conditions of bowel activity ordinarily are considered essential and sufficient for determining the presence or absence of amebic infection, numerous instances have been recorded wherein the organisms were found only after examinations extending over a period of many months.

The discovery of motile amebae in the rectal discharge is insufficient evidence alone for the diagnosis of amebiasis. There are five known types of amebae that inhabit the alimentary tract of man and four of them are harmless commensals. In Kansas City, 11.5 per cent of 200 patients with gastro-intestinal symptoms were found harboring *Endameba histolytica*, and 22.9 per cent harboring similar nonpathogenic bodies. Even to the experienced observer these may be indistinguishable one from the other in the motile stages. Stained preparations must be made. If these fail to reveal distinct nuclear pictures, it may be necessary to await the presence of cysts before a positive diagnosis can be established. Cysts are often missing for days at a time and then may appear suddenly, not infrequently in large numbers. Small doses of sodium iodo-hydroxy-quinoline-sulphonate hasten encystment of the organisms.

When dysentery exists emetine may be administered to control symptoms while the search to establish the identity of ameba is continued; but not until a positive diagnosis of infection with *Endameba histolytica* has been made is aggressive treatment in order. The only contraindications to the use of the drug sodium iodo-hydroxy-quinoline-sulphonate are extreme debility and advanced disease of the liver. Even in their presence it may be given cautiously, beginning with small doses and increasing gradually to the point of tolerance or the customary 48 grains in twenty-four hours over a period of ten days.

Patients vary in their reaction to the different drugs used in the curative treatment

of amebiasis. But those who develop uncomfortable symptoms from one seldom are intolerant of the others, and medication may be adjusted to suit the case. Of the several drugs available those that have proved most satisfactory in the course of time include emetine bismuthous iodide, stovarsol, bismuth subnitrate and iodo-chlor-oxy-quinoline. These are marketed under various trade names.

As a criterion of cure, failure to recover the organisms with a single examination is of no significance whatever. They may be present in swarms on one occasion and missing on the next, with or without the administration of amebicidal drugs. No individual can be pronounced cured with any degree of certainty until numerous tests at intervals for at least twelve consecutive weeks have proved negative. The incidence of cure is high, Craig of New Orleans claiming 100 per cent, while James at the Canal believes it can be effected in only 78 per cent of those treated. A single course of specific medication may be sufficient but usually it must be repeated at least a second time. When there has been extensive destruction of tissue although the ameba may be eradicated, symptoms of some kind are likely to persist. Dietetic management is then recommended.

I shall present seven cases illustrating points in the symptoms, diagnosis, and management of this disease.

REPORT OF CASES

Case 1. A young woman had a swollen, red pus-containing appendix removed four years ago. Recovery was uneventful, but six months after the operation she still complained of discomfort at the site of the incision. This was attributed to adhesions. It persisted for another six months, and in view of a suspicious family history of tuberculosis, roentgen ray of the spine for Pott's disease was suggested. This was refused and the patient complained periodically of her distress until finally it was attributed to her nerves. Last spring she presented a warm stool for routine examination and it was found to contain *Endameba histolytica*. She was placed on specific treatment and her distress disappeared within one week. It has not returned.

Case 2. Another young woman who weighed only 85 pounds had recurrent attacks of pain in the right lower abdominal quadrant. In one attack a diagnosis of acute appendicitis was made and a swollen, red, appendix covered with plastic exudate was removed. She made an uneventful recovery. But distress persisted at the site of the operation which was attributed to linen used as a purse-string suture on the appendiceal stump. Several months later her stool was examined and found to contain *Endameba histolytica*. On specific medication her symptoms disappeared and have not returned. She has gained 10 pounds in weight.

Case 3. A young man presented himself with pain at the right lower abdominal quadrant, nausea, local-

ized tenderness and rigidity. He had no fever and no elevated leukocyte count. There was no increase in either polymorphonuclear leukocytes or in the eosinophilic cells of his blood. A stool was passed and examined within five minutes after it had left the body. Neither trophozoites nor cysts of ameba were found. The next day he took three doses of epsom salts, a teaspoonful at a time half an hour apart, and an hour after the last dose passed a mushy, gaseous stool that was found teeming with motile *Endameba histolytica*.

Case 4. A woman and her husband stopped at a hotel in Chicago last summer and both ate and drank the same kind of food and water. On the return trip, their motor car was wrecked and she sustained a broken rib. She also suffered with severe diarrhea for a week which was attributed to the shock of the accident. The diarrhea disappeared and three months later, symptom-free, she grew suspicious on reading a news report of the Chicago epidemic. Her blood failed to reveal any eosinophilia. Her warm stool was semisolid, contained gas bubbles and motile amebae. However, stained preparations suggested *Endameba coli* rather than *histolytica* and no cysts were found. A second stool was examined and failed to reveal either trophozoites or cysts. A third stool, secured with the aid of teaspoonful doses of epsom salts, revealed cystic bodies but no trophozoites. The stained preparations showed that the cysts were only *Blastocystis hominis*, a vegetable parasite. She was given small doses of iodo-hydroxy-quinoline-sulphonate for three days and a specimen obtained at the end of this time failed to reveal any parasites whatever. One week later a specimen passed spontaneously was examined and found loaded with uninucleate, binucleate and quadrinucleate cysts of *Endameba histolytica*.

Case 5. A farmer had intermittent diarrhea through a period of about three years and had lost 40 pounds in weight. His last attack became a persistent dysentery. Blood smears failed to reveal eosinophilia. His stools were watery, without gas and contained unusually active amebae that except for ingested red blood cells answered to the classical description of *Endameba histolytica*. Stained preparations of these trophozoites presented the unmistakable delicate nuclei of this species so that a positive diagnosis could be made without recovery of the cysts. After his distress had been relieved and the number of his stools decreased by hypodermic administration of emetine, he was placed on iodo-hydroxy-quinoline-sulphonate for 10 days. He then became symptom-free and no parasites were found in a specimen passed one week later. He was asked to present another specimen after another week had passed but failed to come in for 10 days. Meanwhile, he had gained 10 pounds and felt so well that he could see no good reason for having further examinations made. However, a specimen was obtained and found to contain numerous characteristic binucleate cysts. After a second course of treatment two hours' search revealed only three cysts. No parasites have been found since his third course of treatment.

Case 6. A young married woman had abdominal discomfort for two years. Diagnoses of mucus colitis and neurosis had been made. Her warm stool was mushy and revealed motile, large and small amebae and a few mature cysts of *Endameba coli*. Stained preparations showed that the smaller amebae were *Endolimax nana*. The larger were suggestive of two kinds, *Endameba coli* and *Endameba histolytica*, but the distinction was not absolute. Another specimen contained more cystic bodies than trophozoites and stains revealed both cysts of *Endameba coli* and *Endameba histolytica*.

Case 7. A young woman brought in her husband,

who was entirely symptom-free. However, his stools contained large numbers of binucleate and quadri-nucleate cysts and a few trophozoites of *Endameba histolytica*.

SUMMARY

Dysentery occurs in less than 10 per cent of individuals infected with *Endameba histolytica*.

Ulceration of the colon may be extensive without dysentery.

Absence of definitive symptoms is an outstanding characteristic of amebiasis.

Amebic infection is seldom directly fatal, but indirectly contributes to ill health and to death.

Routine examinations should be made for amebae in stools by specially trained competent observers.

Antiamebic drugs should be administered only after the organism present is proved to be *Endameba histolytica*.

Cure is seldom to be assured within less than three months.

Eosinophilia is not necessarily characteristic of amebiasis.

Certain cases of appendicitis may be related to amebic infection.

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CARCINOMA OF THE CERVIX

RESULTS OF TREATMENT IN 136 CASES

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A statistical survey was made in 1932¹ covering twenty-one years of treatment of cancer of the cervix at The Barnard Free Skin and Cancer Hospital, St. Louis. This report is the result of a critical study of an additional 136 cervical cancers treated on the same service at the same institution during the three years, beginning January 1, 1927, and ending December 31, 1929. Comparisons will be made between patients treated during the previous period of time and the period of this survey. In this manner information can be obtained by setting side by side the results of different methods of treatment in the same hands under similar conditions. Such information is of greater value to us than trying to compare similar methods of treatment in other institutions where other factors may enter the results.

During this three year period 177 patients with cancer of the cervix were seen in the outpatient department, but only 136 received treatment. The remaining 41, of whom 27 were in clinical group 4, were merely given

relief from terminal pain, referred back to private physicians, or did not return to us for treatment.

The follow-up records of these cases are almost perfect, as not a single case has been unaccounted for from the time of admission to the hospital until the present time. The patients are either living and free of cancer at this time, or they are known to be dead with the date of death certified. In a series of 352 patients treated prior to this time, 42 were lost sight of between 1917 and 1932. Three of these were found living and well during the last few months, causing some speculation as to the number of others who may still be living. Too much stress cannot be laid on the importance of an efficient social service department in conjunction with a cancer clinic, as this agency is responsible for keeping patients coming for examination at regular intervals, noting changes of address, and keeping contact with patients who have moved from the vicinity and are no longer able to report in person at stated intervals. Without such aid it is almost impossible to know what the end result of treatment is, as most patients who remain apparently free of cancer for two or three years do not return to the clinic without some pressure being exerted by the social service workers.

Table 1. Number of Cases Treated

| | Cases Treated | Cases Cured | Cases Lost |
|-----------|---------------|-------------|------------|
| 1917-1926 | 352 | 44 or 12.2% | 39 or 11% |
| 1927-1929 | 136 | 29 or 21.3% | 0 |

Table 1 shows the number of cases treated, cured and lost sight of from 1917 through 1929. Patients treated prior to 1917 were not considered as a fair basis of comparison with those treated after that date as no radium was available until 1917. The large increase in percentage of five year cures is due to the fact that earlier cases were being treated and we had more experience with radium in the treatment of cancer than in the period 1917-1926.

We have again classified our cases into clinical groups² according to physical findings, aided by radiographs of parts suspected of harboring metastases. Group 1 comprises the cases in which the lesion has involved less than half of the cervix; group 2, those cases in which more than half the cervix was involved, including even those in which there was beginning parametrial involvement; group 3, those cases in which there was infiltration to one pelvic wall, or invasion of the vaginal wall without perfora-

From The Barnard Free Skin and Cancer Hospital.

tion; group 4, those cases in which there was total fixation of the uterus due to bilateral parametrial infiltration. Also included in this group were cases with fistula or metastasis to distant organs, bones or glands. Added to these groups are those cases that were first treated elsewhere with radium or surgery, and those who had a supravaginal hysterectomy, leaving a cervical stump which later became the site of cancer. All such systems of grouping leave much to be desired. I believe a much better and simpler classification of untreated cases would be early, late and far advanced (hopeless). In other words, those cases that I have placed in groups 1 and 2 are early cases; those that are in group 3 are late cases, and the others can be considered far advanced. Cancers originating in the cervical stump may be considered the same as those cervical cancers originating in the presence of the uterine body, for classifying them separately is merely an argument for complete hysterectomy in the apparently endless controversy between complete and subtotal hysterectomy. It is rare for us to add anything but palliative treatment to those patients who have received treatment elsewhere.

Table 2. Clinical Classification of Patients

| Classification | 1917-1926 | 1927-1929 |
|-------------------------|-----------|-----------|
| Group 1 | 24 | 8 |
| Group 2 | 31 | 14 |
| Group 3 | 71 | 63 |
| Group 4 | 187 | 43 |
| Stump | 35 | 6 |
| First treated elsewhere | 4 | 2 |
| | 352 | 136 |

Table 2 shows how the cases were classified and it is seen that during the later period the percentage of earlier cases is greatly increased. This is the greatest factor in the increase of our five year survival rate from 12 to 20 per cent. And it is here that we see the result of the educational campaign carried on by the American Society for the Control of Cancer. Whereas, more than half of the patients presenting themselves for treatment in the first series were far advanced, in the second series about one third were classified as far advanced. It is unfortunate that we should see cancer in the cervical stump, as this is one site where cancer is definitely preventable by removing the cervix with the body of the uterus at the time of the original operation.⁸

Tables 3 and 4 are an analysis of those patients remaining free of cancer for more than five years.

A hasty glance at the figures seems to show that as a result of treatment much bet-

Table 3. Operative Cures

| Classification | 1917-1926 | | 1927-1929 | |
|-------------------------|-----------------|-----------|-----------------|-------------|
| | Number Operated | Cures | Number Operated | Cures |
| Group 1 | 15 | 9 or 60% | 5 | 5 or 100 % |
| Group 2 | 10 | 6 or 60% | 9 | 5 or 55.5 % |
| Group 3 | 4 | 0 | 2 | 1** or 50 % |
| Group 4 | 2 | 1* or 50% | 0 | 0 |
| Stump | 0 | 0 | 2 | 0 |
| First treated elsewhere | 0 | 0 | 1 | 0 |
| | 31 | 16 or 51% | 19 | 11 or 58 % |

* Cautery. Questionable classification.
** Combination radium and hysterectomy.

Table 4. Radiation Cures

| Classification | 1917-1926 | | 1927-1929 | |
|-------------------------|-----------|-------------|-----------|-------------|
| | Radiated | Cures | Radiated | Cures |
| Group 1 | 9 | 4 or 44.4% | 3 | 2 or 67 % |
| Group 2 | 21 | 5 or 23.8% | 5 | 3 or 60 % |
| Group 3 | 68 | 11 or 16.1% | 61 | 12 or 19.6% |
| Group 4 | 181 | 5 or 2.7% | 43 | 0 |
| Stump | 35 | 3 or 8.5% | 4 | 1 or 25 % |
| First treated elsewhere | 0 | 0 | 1 | 0 |
| | 314 | 28 or 8.9% | 117 | 18 or 15.4% |

ter results were obtained from 1927 through 1929 than prior to that time. However, a closer scrutiny of the tables will not bear out this assumption. The percentage of operative cures combining groups 1 and 2 is about the same. In group 3 we find the percentage of cures by radiation to be about the same (16 and 19 per cent) in the two series. In other words, the increase in the percentage of cures is due in great part to the fact that patients were being treated at an earlier stage of the disease. It is for this reason that statistics from different clinics are of little value as a basis of comparison of the efficacy of individual methods of treatment, if there be no way to determine the stage of the disease. Different men examining the same patient frequently disagree on the extent of the disease. It is probable that others classifying these cases would group them differently thereby establishing an entirely different interpretation of the figures. Therefore, less stress should be laid on the actual figures quoted by various sources and more importance laid on a comparison of the results in the same place on similarly involved cases by different methods of treatment.

We believe that the radical operation, either by the vaginal or abdominal route, has a very definite place in the treatment of cervical cancer, provided its use be reserved for those patients in whom there is absolutely no extension of disease laterally. In our hands better results were obtained from surgery than from radium. Before radium was available surgery offered the only hope of cure in cancer of the cervix. Many pa-

tients were operated upon as a last resort and it is only natural that, with the technical difficulties limiting the procedure to a comparative few, the radical operation has fallen into more or less disrepute now that radium is available to almost any practicing physician.

Radiation, or radiation combined with conservative surgery, is the method of choice in all cases that formerly were designated as "border line." In the last four years we have been experimenting with two forms of combined treatment that have been or will be described elsewhere.^{4, 5, 6} Both of these methods seem to have definite advantages over simple radiation.

We agree with Ward and Farrar⁷ that re-radiation with emanations or small doses of radium is definitely indicated. Of the 18 patients living more than five years, herein described as radium cures, 6 were reradiated with emanations because of local recurrences that were proved cancerous microscopically. At the present time we are experimentally using much larger primary doses of radium (5000 to 6000 mgh.) with much greater filtration (1.2 mm. platinum). During the era covered in this paper radium was used more or less routinely in the following manner: Fifty milligrams of radium salt screened with 1 mm. of brass and 1 mm. of ametallic rubber was inserted into the uterine cavity. Forty to 60 milligrams similarly screened was placed in the cervical canal, and 40 to 60 milligrams of radium salt in steel needles were plunged into the cervix and paracervical tissues involved by the growth. A total of 150 milligrams of radium were used, in 3000 to 3300 milligram hours were applied and an additional dose of 1000 to 1500 milligram hours given within 6 weeks in selected cases. Comparatively large amounts of beta radiation were hereby used. At the present time we are using as little beta radiation as possible due to the increased density of our filters. After receiving radium treatment patients were referred to the roentgen ray department for deep therapy. At the present time every patient receives a course of from 700 to 900 "r" units of roentgen radiation about three weeks prior to radium therapy. The results of this preliminary roentgen radiation seem excellent. Certain patients also receive roentgen radiation after their radium treatment.

Twelve patients treated with radium and roentgen ray had completed retrogression of their local lesions, made rapid gain in weight and were apparently clinically free of cancer for periods varying from one and one half to four years. A careful study of these cases

showed that all received small doses of radium, none of which were repeated because a clinical cure had apparently been effected by means of minimum dosage. We now realize the fallacy of such reasoning and as a result a maximum dose is given to most patients at the first application, or a maximum dose given within a six week period. It seems likely that had these 12 patients received larger radium doses some at least would have survived the five year period.

It is regrettable to find that many of our far advanced cases have been under the care of a physician for periods often exceeding one year. With so much effort directed toward making the laity cancer conscious we believe too little effort is directed toward the education of the physicians who see the great bulk of the patients. So frequently the practitioner sends his middle aged patients away from his office with a bottle of ergot or a prescription for some glandular preparation, assuring her that she is merely having her "changes." A great number of patients have been treated for vaginal bleeding without having had a pelvic examination until the bleeding has become so profuse that the patient herself makes the correct diagnosis of her condition and changes physicians.

A watchful waiting policy should never be adopted in suspicious cervical lesions. Removal of a small piece of tissue for microscopic examination will clear up the doubtful diagnosis at once and allow proper treatment to be instituted. An early diagnosis of cancer will save many lives.

The treatment of cancer with radium should be carried out only by those who are qualified by experience in the use of that element. Many poor results are entirely due to inefficient treatment in the hands of excellent surgeons who unfortunately have had little or no opportunity to observe a sufficient number of radium applications. Many poor results in the treatment of cancer are due to the efforts of agencies distributing radium emanations and radium salts. Some of these concerns circularize the medical profession asking for a brief description of the lesion to be treated and promising a confidential report with full details of treatment by return mail. We laugh at the attempts of medical columnists to aid the public in their efforts at self education and self treatment, yet journal after journal carries the advertising matter of these radium distributing agencies who attempt to advise treatment of patients by mail whose critical condition demands the personal attention of an expert.

A detailed description of all the mi-

croscopic sections studied in connection with this report may be found elsewhere.⁸ Twenty-five per cent five year survival in cervical cancer statistics today is considered good. We are now engaged in a study to determine, at least in part, why the remaining 75 per cent are lost. It does not seem reasonable to assume that this great majority of patients already have metastasis to distant glands or organs when first seen. Using this premise as a basis for further study, we are trying to determine the effect of roentgen ray as well as radium on each patient that is now being treated at this hospital. Gross as well as microscopic examinations are made periodically from the time that the patient is first seen until all reaction from radiation has disappeared. More than 100 patients have been studied in this manner during the last year. Important information has been made available to us. Within the next year the results of our studies will be available for publication.

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BIBLIOGRAPHY

1. Auer, E. S.: Carcinoma of the Cervix Uteri, J. A. M. A. **98**:2259, 1932.
2. Schmitz, H.: Discussion of Radiology as a Complete or Partial Substitute for Surgery in the Treatment of Cancer of the Female Pelvic Organs, Surg. Gynec. & Obst. **50**:178, 1930.
3. Gellhorn, George, and Spain, Kate: Prevention of Cancer of the Cervix Uteri, J. Missouri M. A. **31**:133, 1934.
4. Auer, E. S.: A New Method of Treatment in Cancer of the Cervix, J. Missouri M. A. **25**:282, 1931.
5. Gellhorn, George: Combined Intra-Abdominal and Intravaginal Radium Treatment in Cancer of the Cervix, Surg. Gynec. & Obst. **58**:879, 1934.
6. Taussig, F. J.: Iliac Lymphadenectomy With Irradiation in the Treatment of Cancer of the Cervix, Trans. of the Am. Gyn. Soc., 1934.
7. Ward, G. G., and Farrar, Lillian: Eleven Years Experience With Radium in Carcinoma of the Cervix, Surg. Gynec. & Obst. **52**:556, 1931.
8. Jorstad, L. H., and Auer, E. S.: Histological Grading in Carcinoma of Uterine Cervix. Its Relation to Clinical Grouping and Prognosis, Surg. Gynec. & Obst. **57**: 1933.

TREATMENT OF CHRONIC BRIGHT'S DISEASE

James P. O'Hare, Boston (Journal A. M. A., Nov. 3, 1934), in his discussion on the treatment of chronic interstitial nephritis, applies the term "chronic Bright's disease" to chronic glomerulonephritis, chronic vascular nephritis and chronic nephrosis. The most important form of treatment, without doubt, is a diet that aims at a proper balance between food intake, the ability of the kidneys to excrete end products, and the general needs of the body. He stresses the following points: 1. Chronic hypertensive nephritis is not a disease of the kidneys alone. Intelligent treatment demands an intelligent understanding of all the problems involved. 2. Overtreatment may be quite as harmful as undertreatment. 3. Chronic nephrosis is fully as great a nonrenal problem as chronic nephritis. Before thoroughly satisfactory treatment for this condition can be devised, much new knowledge must be forthcoming.

PREGNANCY TEST AS GUIDE IN MANAGEMENT OF ECTOPIC PREGNANCY

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ST. LOUIS

Since many observers report that there is an increase in the number of tubal pregnancies all over the world it is fitting that early methods of accurate diagnosis be instituted frequently so that serious complications may be avoided. With this in mind, a case of early tubal gestation was studied in the following manner:

REPORT OF CASE

Mrs. W. presented herself at my office, March 28, one week before her first hospital admittance, with the following history: She had a cold seven weeks ago and delayed menstruation followed. The last period was February 28. This seemed normal in character; however, she started spotting one week later and continued this spotting with colicky lower abdominal pains, worse at time of urination and defecation, throughout the month of March. The previous menstruation was January 26 and was entirely normal in character. She had always enjoyed good health. Her previous pregnancies were full term and normal and delivery three years' ago was with uncomplicated puerperium. There was a history of an unattended early miscarriage eight months before the present illness. Vaginal examination one week before hospital admittance showed the cervix to be slightly bluish in color, somewhat softened and very tender on motion with the uterus. The uterus was not enlarged. The right adnexal region was tender but no mass could be made out. The left adnexa were not palpable nor tender. There was a slight bright red uterine bleeding at the time of examination.

Impression: (1) Threatened abortion. (2) Tubal abortion or early right tubal pregnancy. There were no other significant diagnostic points. The blood count showed 4,450,000 R. B. C., 8,000 W. B. C. and an 88 per cent hemoglobin.

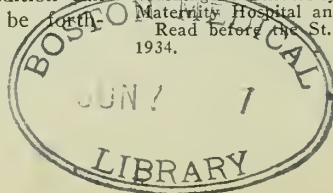
She was sent home to bed and was told to report further developments. Five days later vaginal examination was entirely negative except for a slightly softened cervix. There was no pain or tenderness on motion of cervix and uterus and both adnexa were free from masses and tenderness. Vaginal bleeding had also stopped.

On April 4, two days after the above examination, the patient was suddenly seized with a severe lower abdominal pain while she was on the toilet. She got back to bed with difficulty. Vaginal bleeding had again started and was of a dark brown character. Rectal examination caused exquisite pain and there was some sense of fullness in the culdesac but no adnexal masses could be made out.

On admission to the hospital the evening of April 4 she was in no pain or discomfort. Blood count showed 4,750,000 red cells, 7,200 white cells with a hemoglobin of 85 per cent. Pulse and temperature were normal. The following morning an examination under anesthesia was made. Uterus was normal size, shape and

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Read before the St. Louis Gynecological Society, May 11, 1934.



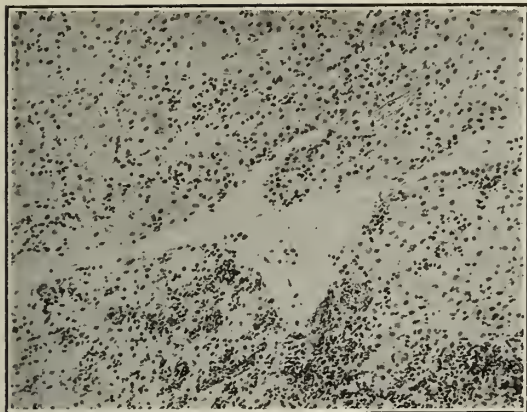


Fig. 1. Section showing portion of fresh decidua about two ounces of which was removed at D & C.

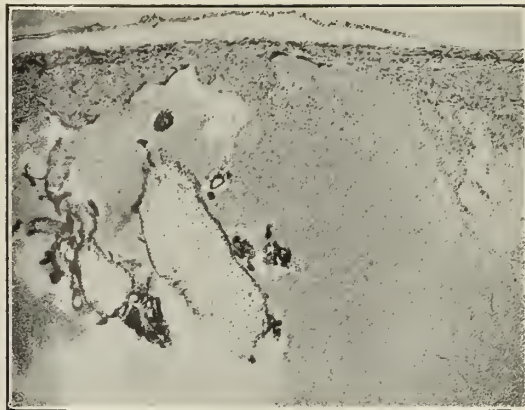


Fig. 2. Section showing chorionic villi in the tubal lumen together with a large amount of hemorrhage.

position. There was a dark bloody uterine discharge. The adnexa were essentially negative except for a questionable mass in the right tubal region which could not be definitely outlined. The uterus measured three and one half inches. The cervix was easily dilated and a large amount of decidual tissue was removed with the curet.

Microscopic examinations showed large amount of decidual tissue, about two ounces, for the most part well preserved. There was infiltration with round cells. No chorionic villi were found. The largest chunk of this decidual tissue measured 3 by 1 by $\frac{1}{2}$ cm. Blood was taken for a pregnancy reaction after the method of Brown and the patient was sent home on her third postoperative day. There was no further pain nor discomfort. She was told to remain in bed for a week.

The interpretation of the pregnancy reaction was that of a subsiding tubal abortion as there was only one regressing hemorrhagic follicle. However, it was deemed advisable to repeat the pregnancy reaction in a week's time. This was done seven days later. The report showed from four to six large hemorrhagic follicles. In the meantime the patient was up and about and entirely free from any symptoms whatsoever except for a slight feeling of pressure in the lower abdomen on the right side whenever she emptied the bladder.

In lieu of the pregnancy reaction becoming positive instead of regressing as was prophesied and since a thorough curetting of the uterus had shown only decidua without chorionic villi, the patient was told that a laparotomy for extra uterine gestation was imperative.

She entered the hospital again on April 18 in apparent perfect health. There was no pain nor discomfort of any kind. Pulse and temperature were normal. The blood count was 4,840,000 R. B. C., 6,000 W. B. C. with a hemoglobin of 85 per cent. There had been no further vaginal bleeding or discharge. Laparotomy the following morning showed free blood in the peritoneal cavity. This blood was dark red and there were numerous small blood clots. There was a pelvic mass in the culdesac the size of a small lemon which originated from the right adnexal region and was apparently composed of the right tube and ovary. As this mass was freed from the surrounding blood clots and intestines a frank hemorrhage was started and it became necessary to use the sucker to clear the operative field in order that the infundibulopelvic ligament and the right uterine horn could be clamped off. The

entire right adnexa were removed. The appendix was in the operative field and together with the cecum and some of the loops of small intestines was covered with small blood clots. The left tube and ovary appeared normal except for small adherent blood clots. The sigmoid was comparatively free from blood clots. No attempt was made to remove these blood clots except those which came away with the general use of the sucker. Care was taken to peritonize the raw surface of the removed right adnexa. Abdomen was closed without drainage. The patient had a relatively uneventful postoperative course with the exception of a temperature rise to 39 on the first postoperative day.

It is interesting to note the patient complained of more abdominal pain postoperatively following the ingestion of raw carrots and green peppers eaten in a salad on the tenth postoperative day than at any time during her present illness.

Pathological report of tissue removed at laparotomy showed tube and ovary. There was a corpus luteum of early pregnancy and a follicle cyst of the ovary. There was an ampullar tubal pregnancy. The small fetus measured about 3 cm. and was floating about in the small amniotic cavity, a portion of which was extruding from the ruptured portion of the tube. The corpus luteum of early pregnancy was quite large and there was a cyst lined by granulosa cells along with a small simple cyst. There was increased vascularity. Sections of the tube showed large masses of blood and fibrin and a few fairly well preserved early chorionic villi. Other villi were seen only in a degenerated state. A portion of the tube wall appeared fairly typical. The ampullar lumen was dilated. The plicae were large, papillary and blunt, and only a few were seen.

The third pregnancy reaction was run on the sixth postoperative day and the blood serum was allowed to remain in the rabbit over a longer period of time than the two previous tests. This third pregnancy reaction was entirely negative.

H. U. Hirsch-Hoffman in October, 1932, found that if the Aschheim-Zondek test is positive on two occasions, even when aspiration of the culdesac showed no free blood to be present, operation was always advisable. In twenty-nine cases of ectopic pregnancy twenty-three gave positive tests and in some eighteen cases in which there was bleeding for from three to fourteen days, there were

twelve positive tests. In another series where bleeding persisted for from two to eight weeks there were only ten positive reactions out of some twenty-eight cases studied.

A gynecologist by the name of Apajalahti in 1932 studied the follow-up records of some 300 women who were operated upon from 1920 to 1930 at the Woman's Clinic in Helsinki. He showed that the type of operation performed was of great importance to the subsequent health of the patient. When careful methods of peritonization were employed 88 per cent were free from annoying symptoms. Three cases out of ninety-four developed intestinal obstruction where peritonization was not accomplished and there were no cases in 116 incidences where the so-called high method of peritonization was carried out. Of seventy-nine women who were capable of conceiving again forty-one subsequently became pregnant. Of the following pregnancies of these forty-one women there were twenty-nine full term deliveries, twenty abortions and three extrauterine gestations. In this series eighteen women had ectopic pregnancies the second time. He figures that on a basis of a four year interval the frequency of repeated ectopic pregnancy is 7.3 per cent of the total number; but if figured on the basis of those who subsequently became pregnant a very high incidence of repetition of ectopic pregnancy is shown, viz., 17 per cent. This is a strong argument in favor of removal of the unimpregnated tube if there is any additional pathology in the pelvis at the time of the laparotomy.

CONCLUSIONS

1. A negative or faintly positive pregnancy reaction should be repeated in three to six days.

2. One or more positive pregnancy reactions, in suspected ectopic gestations where careful curettage of the uterus has shown only decidua tissue to be present without chorionic villi, demand laparotomy at once.

3. Waiting for subjective symptoms is a too hazardous procedure.

4. It is surprising that such an extensive lesion in this case reported caused so mild clinical symptoms.

5. Early operation before advanced lesions occur is possible without any sacrifice in accuracy of diagnosis in early suspected ectopic gestations if the above method of study as presented in this paper is carried out without delay.

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BIBLIOGRAPHY

1. Hirsch-Hoffman, H. U.: Die Bedeutung der Aschheim-Zondekschen Reaktion für die Klinik der Entrauteringravität, *Klin. Wehnschr.* **11**:1791 (October 22) 1932.
2. Apajalahti, A.: Über die späteren Schicksale der wegen einer Tubenschwangerschaft Operierten, *Acta obst. et gynec. Scandinav.* **12**:329, 1932.
3. Bernhard, E.: Über die Zunahme der Tubargravidität und ihre Ursachen, *Ztschr. f. Geburtsh. u. Gynäk.* **105**:46 (March 31) 1933.
4. Brown, T. K.: Proposed Modification of Aschheim-Zondek Pregnancy Test, *Am. J. Obst. & Gynec.* **23**:379 (March) 1932.

DISCUSSION

DR. T. K. BROWN, St. Louis: The first Aschheim-Zondek test run upon this patient was made on April 7 and showed a weak type II reaction which I thought might be a decreasing reaction following death of the fetus. I suggested that this test be repeated in a week or ten days. On April 16 the test was repeated and gave a strong type II reaction with marked injection of the uterus indicating that the pregnancy was progressing and the connection between fetus and mother probably was still intact.

The patient was operated on April 19 and on April 26 the test was again repeated and found to give a type I reaction with very slight injection of the uterus.

I feel that by means of this series of tests Dr. Roblee was better able to decide upon the course to follow in the treatment of this case because I am sure that he would not have handled it exactly this way if he had gone on a clinical picture alone.

The method used in the above tests is according to my paper "A Proposed Modification of the Aschheim-Zondek Pregnancy Test."⁴ The reactions obtained are designated as HVR-I, HVR-II and HVR-III. (Hypophysenvorderlappensreaktion.) HVR-I is the reaction of ovulation in which the ovary is stimulated to a marked follicle formation. HVR-II is the production of "Blutpunkt" or hemorrhagic follicles. HVR-III is the formation of corpora lutea atretica.

HVR-I may occur with cancer, tumors and endocrine diseases; HVR-II and HVR-III either individually or associated may indicate the presence of a pregnancy, hydatidiform mole or chorio-epithelioma.

Recently I have had a strong HVR-II reaction in a case of teratoma of the testicle. This reaction was obtained from the patient's blood, pleural fluid and urine.

PRESENT STATUS OF TETANUS

Richard H. Miller and Horatio Rogers, Boston (*Journal A. M. A.*, Jan. 19, 1935), report thirty-three additional cases of tetanus from the Massachusetts General Hospital, making a total of 149 cases. Since 1896, when antitoxin was first used, the mortality has declined from 80 to less than 47 per cent. Prophylactic injection of antitoxin (1,500 units) is indicated in cases of deep or puncture wounds that may be contaminated. In unusually suspicious cases this should be repeated once or even twice at intervals of ten days. The wound should, when possible, be debrided and kept open. After the onset of tetanus, every effort should be made to conserve the patient's strength by the maintenance of nutrition and fluid balance, and by the combating of muscle spasms. Tribrom-ethanol is a useful drug for the control of spasms. As soon as the diagnosis is made, serum should be given intravenously, intramuscularly or both in daily doses of from 20 to 80 thousand units up to a total of 300 thousand units. In hypersensitive subjects the process of desensitization must be instituted as soon as possible. There are no theoretical or practical grounds for the recommendation of the intraspinal administration of antitoxin.

THE NEUROTIC—A CHALLENGE

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The neurotic presents the most vital problem facing the medical profession today. It may not be the life-and-death problem of cancer and heart disease, and yet death frequently results from the neuroses. It may not be a preventive problem, as is public health and vaccination; and yet application of the principles of mental hygiene would save as much misery as would the universal application of physical hygiene and preventive medicine.

We may summarize this problem as follows: A neurotic background may be found in at least 50 per cent of all the patients who consult the practicing physician today. It will be found in over 90 per cent of all those who support the fads that flutter on the outskirts of medicine—the rubbers, the faith healers and the patent medicine vendors. It is found in every case of drug and alcoholic addiction and in the personality of every suicide and many who die an accidental death. It will be found in most chronic paupers and many of the criminal class and is present in nearly every person who later becomes insane.

If the above prevalency and disastrous end results of the neuroses are true, and most psychiatrists believe they are, then the functional nervous diseases cause directly by suicide every year the death of one person in every five thousand in the United States; and indirectly, through alcoholic excesses, malnutrition because of faddish diets and improper eating and other contributory causes, bring about the death of a vast number more, the number of which cannot even be estimated. They fill more hospital beds or lead to the filling of more beds in the State hospitals for the insane than all other medical conditions combined. They have made possible the continued existence of all those quackeries, fadderies and charlatanries that have preyed on human suffering, and through them have blocked many public health advances that the medical profession has worked for. And the economic loss through eleemosynary institutions, charity chests, free clinics and loss of time from gainful work, is probably greater than from any other cause. We might go on and indict the neuroses as responsible for wars, panics and depressions; but we think our case is strong enough, without infringing upon the field of popular writers.

One would think that with such a universal problem confronting the medical profession, the challenge would be accepted and the practicing

physician would be keenly alive to it at all times; he would try to understand it and would devote his best constructive efforts to devising means to overcome it. But, unfortunately, this is not generally true. He cannot, or will not, give the time to these cases; after his examination reveals no pathology he is apt to send the patient to the quack or corner drug store with the admonition that, "there is nothing the matter—go home and forget about it." He does not understand because there are no great research foundations pouring out press reports as to the progress toward discovery of a specific cure; no vast funds of money to be spent to publicize the efforts of a few hard-working independent thinkers, and, what is probably more important, these cases are usually so abstract and their symptoms so transitory that the American mind demanding concreteness and orderliness, views them with distaste and a suspicion of imaginary disease and malingering.

Nothing is further from the truth. A patient suffering from a cardiac neurosis, is just as sick in his own conception of his case, as one suffering from mitral stenosis with insufficiency. Each has his own conception of his own illness and the latter case will not consult a physician because he has a lesion in his heart, but because he has symptoms from that lesion. If they incapacitate him he must go to bed. If the symptoms from the functional condition incapacitate the neurotic, he, likewise, must go to bed and no amount of will-power will get him out; the cause of the condition must be removed and here is where the understanding is so valuable. If we comprehend the presence of a cause and its removability and the fact that time may do what we cannot do, then we will not force a believer in medicine to the quack or faddist, with the phrase, "there is nothing the matter." He who follows us may be more understanding, more competent or more grasping and, if he cannot remove the cause, directly or indirectly, may give time an opportunity and will be given credit for a cure. Or, as many an honest believer in his art is doing, he may call in competent help and take the credit of knowing what his patient needed even if he could not supply it himself.

In order to understand a condition it is necessary to know the etiology, the symptoms and the treatment. In this paper, we will not discuss the latter two points. The symptoms may be of any and every kind. The treatment consists of explaining the cause to the patient, after it is discovered, plus the laying down of certain definite rules of thought, which will help in the removal of the cause and the correction of all possible physiological defects.

The first thing we must do is to clarify terminology. Much has been written about the difference between neuroses and psychoneuroses,

neurasthenia and psychasthenia and hysteria. Other names have been given to these conditions from time to time, and a sincere effort has been made to classify and catalogue. Now, it is perfectly possible to classify symptoms, and theoretically it is possible to classify patients by saying that those who present certain symptoms fall into a certain disease entity. But, this immediately puts a static interpretation upon all of these conditions, and everyone must know that neurotic patients are not static; that there is a constant flux and flow of symptoms.

The environment and the reactions of patients change from day to day and week to week. We wonder how one should classify the following case:

E. H., aged forty, while driving through a small Missouri town was thrown against the top of his car and fractured the body of the third cervical vertebra and received a cerebral concussion. He was unconscious for several hours. There was no trauma to his nervous system from the fracture and, after several weeks, apparently it had healed in good position. But, the spasm of the cervical muscles continued, for no apparent cause. He was told there was nothing the matter with him, by several doctors, but his mirror told him he had a severe wry neck. He began to vomit at intervals. His company had sent him to the best physicians. But, he began to develop ideas that the doctors had neglected him. Shortly afterward, he developed a left hemiplegia, from which he recovered after several weeks but still has some residuals. At the present time he shows definite evidence of mental instability and mild delusions about his wife and his present doctor, plus a definite neurotic outlook on life.

Here is a patient who could have been at various times classified into any of the groups mentioned above. At the present time his case would have to be classified as a neurosis, psychoneurosis, hysteria, neurasthenia and psychasthenia. All of these so-called diseases are the result of varying environmental changes and varying reactions to them. They could all be corrected by removing the single etiological factor, his monthly compensation and a return to a gainful occupation which would be his sole support.

We think the above case illustrates the futility of minute and exacting classifications. We would like an etiological classification but, until our knowledge of etiology develops into a more exact science, we must not attempt it. Therefore, we use a single term to designate all diseases of the entire nervous system which do not have pathological changes. This term is functional disease. We divide this into two great groups, medically speaking, neuroses and psychoses. No further breakdown is attempted by us at this time.

However, these terms are not accurate nor static, as one condition may flow into the other and back again. We may say that a psychosis

is a disease manifesting itself by a false concept of reality in the environment of the patient.

A neurosis is a false concept of the reality of body function. We may break up the neuroses into three subclasses: (1) Those cases which have absolutely no pathological background anywhere in the body—a pure disturbance of the mental process—a form of psychosis, without changes in the body chemistry, the structure of the organs or disturbances of secretion. (2) In this class we place those cases which do have a pathological lesion in the body, such as mitral regurgitation, gastric ulcers or a chronic infection of the leg, but the symptoms of this condition are markedly greater than the physician would expect from his past experience with similar diseases. (3) Here we group an as yet little understood class of patients: those who because of chemical and glandular changes of the body metabolism develop a neurotic type of outlook upon life. Many of these dyscrasias, hypergasias and hypogasias are diagnosed and treated, such as thyroid and ovarian syndromes, changes in the sugar and nitrogen content of the blood, and toxemias. However, we believe that there are many minor changes which our clinical knowledge and our laboratory technic are, as yet, too crude to detect and that these changes definitely influence the development of neurotic-like conditions. In this group we must also place apparently primary disturbances of the autonomic sympathetic nervous system. Some progress has been made in the study of vagotonia and sympatheticonia, but, as yet, etiology is largely speculative and treatment in the experimental stage.

We may find that some day even these subclassifications of the neuroses are erroneous and that there is a single type; but at the present time we must study our patient thoroughly from every standpoint and attempt to put him into one of the working groups.

The diagnosis of group 1 is arrived at by the elimination of all other possible causes, through use of the diagnostic procedures which we have at our command. If, after a thorough study, we can find no evidence of a morphological or functional change we may consider that the patient's symptoms are a subconscious conception of disease. We must remember always that functional changes may be superimposed, such as the tachycardia of the effort syndrome, the gas and eructations of the gastric neuroses and the impotency of the genito-urinary group. Also, as the result of an improper medical approach, other changes may occur, both functional and morphological. The most common change of this type is chronic constipation following self-administered prolonged catharsis. The chronic soda bicarbonate taker will change

the gastric function, and continued use of barbiturates will certainly have an injurious effect upon many of the body functions.

The most important point to be made about this group of cases is, that their symptoms are neither put on, imagined in the true sense of the word, nor exaggerated. These people feel sick and, subjectively, are sick. If we find no cause that satisfies us, we must still take the patient's opinion of his feeling tone into consideration.

These cases are probably all psychic and therefore the psychic approach is the most logical manner of investigation. These cases have either a wishfulfilling background or result from fears; many times both factors are present. Sex, in the psychoanalytic meaning is, of course, important but we believe that it is secondary to the other two. The doctor may help these cases by understanding. These patients need help and must have it. If organized medicine cannot or will not give it to them they will seek it elsewhere, in the cults and the quackeries. But they are not cults and quackeries to the patient. They are a curative agent the value of which depends on results. Let every doctor study these patients and their personalities, listen to their problems, find their weak spots and bolster them up, carry them along with sedatives and sympathy, in small doses. But, in this group, the use of opiates and other habit-forming drugs is disastrous. The habit is grasped and may be clung to throughout life.

The patients who are classified in group 2 are similar to those of group 1. These patients have a pathological lesion in their bodies of which they are aware, but their reaction to this condition is all out of proportion to the severity of the lesion. They will worry about every trivial setback in their lives as well as their physical condition. They are nervous, high-strung and introspective; they are active and hard workers, when things go smoothly but are unable to climb over the rough spots of life without help.

These are the patients who call the doctor out at all hours of the night because of such trivial things as a cold or gaseous eructation. They haunt the office of the practitioner with minor conditions, and are prostrated by serious disease, either in themselves or some member of their family.

The whole personality circles around this exaggerated reaction to adversity. The failure to stand on their own feet and the need of outside support make these cases susceptible to charlatans and quacks; forces them to seek aid from doctors, ministers and similar counselors, but they are unable to follow advice or to apply principles, so they return again and again, with

the same or similar problems. This search for aid makes them very susceptible to stimulants and narcotics. Physicians must be careful in the use of opiates. Morphine addicts are almost always of this type of personality, and almost every case of the morphine habit that traces his addiction to a doctor comes from this group.

The only real distinction between these two groups is that in the latter there is always a real problem, but it is usually, of course, very slight. Cure or removal of the physical disease almost invariably cures the patient, but he will return quickly and frequently with something else.

These cases require the same careful handling as group one. They are sensitive, and gruffness or evidence of a distasteful reaction to the patient will not cure, but will kill the confidence in the doctor. Some men, however, are particularly fitted to handle these patients, and their attitude of disinterest, during treatment, plus an accurate scientific knowledge and care and patience of examination, does produce a feeling of confidence in the patient which hurries convalescence.

Group 3 has had, as yet, little study or thought. It has been customary, after an examination reveals negative results, to label the case, tentatively, neurotic, until further evidence is discovered; and this is usually not forthcoming, with the methods we have at our disposal today.

However, we have felt for some time and are accumulating evidence which we will present in a future paper, that there is a definite change of function and body chemistry which causes the symptoms of weakness, insomnia, low blood pressure, anorexia, and polyuria—the chain of symptoms found in many so-called neurotic patients. In the true meaning of the word neurosis, these cases, therefore, should not be included in this paper, but since they have always been classified in this group, we do not as yet feel justified in changing the terminology.

This type of case differs from the first two in that there is probably very little if any psychic unadjustment. Every physician has come in contact with the patient that baffles all of his powers. He seems to be faced with a problem that has a definite neurotic chain of complaints. But this patient seems to be adjusted; family, business and social life present no problems. There are no organic lesions that can be determined. The patient may show superimposed psychic symptoms, such as anxiety, fears and abnormal sexual reactions. These, however, are secondary to the primary cause and result from a long-drawn-out illness without relief.

Even the most understanding, intelligent practitioner is faced with an impasse. Every approach leads to a blank wall. In these cases, therefore, empirical methods of treatment must

be used. Sedatives, tonics and glandular preparations should be given freely, in a balanced regimen, and study continued until something is found that is a possible clue to etiology.

We sometimes suspect that all functional cases will eventually come under this etiological grouping. For that reason we feel that it behooves every practitioner to be constantly on the lookout for any minor variance that might have a bearing on the etiology. Something might be found which will give us the key to the whole puzzle of the neurotic.

SUMMARY

The neurotic is a difficult type of patient to handle. The practitioner must be a keen observer, a wise interpreter and a patient listener, if he is to ferret out and properly balance the myriad complaints that are poured into his ears from the neurotic mind. The medical student, the intern and the young practitioner must have this technic of approach impressed upon their minds if they are to grow in the practice of medicine, to do their best for themselves, their patients and medicine in general.

Only thus will organized medicine be able to prevent the rapid growth of insanity and its terrific economic loss. We must do this to lower an appalling death rate from suicide and so-called accidental death. In this manner can we best fight the growing use of alcohol and narcotics. And, most important, we can stamp out the quacks and the charlatans, by cutting off their income. If we relieve the symptoms of these patients when we have our opportunity, they will not consult the cults, after leaving us.

1432 Professional Building.

IS THERE SCARLET FEVER TOXOID?

George F. Dick and Gladys Henry Dick, Chicago (Journal A. M. A., Nov. 3, 1934), present their experiments which were undertaken to learn whether the addition of formaldehyde to scarlet fever toxin results in the formation of a scarlet fever toxoid, nontoxic but capable of binding scarlet fever antitoxin and capable of stimulating the production of antitoxin when injected into susceptible persons. Their conclusions are: 1. Scarlet fever toxin is partially but not completely detoxified by treatment with solution of formaldehyde up to 1 per cent. The presence of unaltered toxin in the formalized preparation is sufficient to account for the immunity obtained. 2. No evidence now available justifies the assumption that there is a scarlet fever toxoid analogous to diphtheria toxoid. 3. Alum precipitates diphtheria toxin and the toxin may be demonstrated in the precipitate; but the redissolved alum precipitate from scarlet fever toxin showed no evidence of the presence of toxin. 4. The rabbit is not a suitable subject for standardization of scarlet fever toxin. 5. Since the detoxified portion of formalized scarlet fever is not antigenic, it is inferior to unmodified toxin as an immunizing agent because of the unnecessary amount of useless foreign protein which it contains.

HIGH BLOOD PRESSURE AS A SYMPTOM AND WHEN IT MAY BE CALLED MALIGNANT

EDWIN SCHISLER, M.D.

ST. LOUIS

High blood pressure produces such a variety of clinical signs and symptoms that it should be of interest not only to the internist but to all specialists, and particularly to the surgeon, as patients at times first consult him because of symptoms referable to the abdomen caused by passive congestion of the liver secondary to hypertensive disease. This may be the primary factor in arteriosclerosis and vascular disease; with anginal pain of the abdominal aorta which accounts for some of the more obscure abdominal conditions when the patient is subjected to various methods of treatment without relief. This will be discussed in detail later.

In recent literature articles on "Malignant Hypertension" have been published with the classification of essential, paroxysmal, benign or malignant, but as yet no clear hypothesis has been offered. Therefore the object of this paper is to define the term "malignant" and give my observations and conclusions from a clinical study so we may be able to have a working basis of when and when not to use this term.

The meaning of malignant is virulent and tending to go from bad to worse, so I will treat this subject from two angles: first, the cause of hypertension, or etiology; second, the effect of hypertension, i. e., physiological changes and anatomical results.

The causes are many; take any pathological changes of the arteries, heart or kidneys which affect the general sympathetic nervous system and produce early symptoms of hypertension which should be classified as complicated or uncomplicated depending upon the fundamental pathological changes in the vascular system. In addition to the vascular system we must consider other organs as possibly being associated with the cause of hypertension; for example, the thyroid gland, the suprarenal gland with tumors in this region, the eyes with retinal changes which are found in progressive hypertension cases associated with arteriosclerosis and cerebrovascular changes, which are subject to cerebral hemorrhage. Time does not permit me to discuss this phase because it is a subject in itself.

It is most important to have an eyeground examination showing the arterial changes, and usually when these cases become malignant the ocular findings are diagnostic. Patients usually

From the Medical Department, Deaconess Hospital.
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complain of ocular symptoms such as blurring, vision interference, etc., and these findings are more common in cases complicated with renal symptoms.

Digestive disorders in general are frequent complications of hypertension. Among the most frequent immediate exciters of cardiac attacks are gastric inflation, pylorospasms, gastric retention, gastroparesis, enterocolitis, cardiospasm, vascular crisis and abdominal angina. Many persons subject to heart disease suffer attacks only when the stomach or intestinal tract is distended, either under pathological or physiological states. The appearance of almost any sort of gastro-intestinal or gallbladder disease aggravates and increases the blood pressure reading. In some instances, notably when the basic pathology is a defective heart muscle, gastro-intestinal symptoms appear as a result of increased blood pressure and cardiac decompensation and complicate the diagnosis of the abdominal condition.

Dyspnea on exertion is one of the most important symptoms and should not be passed over lightly until the etiological factor is found. An early diagnosis is just as important as in tuberculosis, cancer, etc. Usually when patients complain of exertion symptoms the findings are vague; they may have moderate hypertension but when the urine shows slight renal irritation and there is an accentuated aortic second sound, ringing or metallic in character, accompanied by a high peripheral resistance and an elevated blood pressure with anginal pain over the precordia, it means damage to the structure of the aortic valve and usually dilatation of the aorta and a low peripheral resistance which are also of great importance.

The myocardium raises the blood pressure by stronger and more frequent contractions to supply the blood through the vessels more rapidly. If this persists for a period of time it results in a compensatory hypertrophy of the left ventricle and if its action is impaired by disease of the coronary arteries or general malnutrition, sepsis, etc., it will be unable to keep the blood pressure at the high level it has maintained for months or even years; it finally becomes exhausted which accounts for the drop in the readings and accompanying decompensation, renal changes, etc., and the case is usually terminal in character.

Patients not aware of any changes in their blood pressure are often informed of their condition on insurance examination. These patients usually give a history of one or more of the following symptoms, namely; shortness of breath, digestive disturbances, vertigo or dizzy spells, precordial pain anginal in character, with or without radiating pain and discomfort in the left arm and shoulder and corresponding part

of the back with slight swelling of the lower limbs. It is not difficult to differentiate these varieties of pain from those caused by disease of the spinal cord or of the dura. The cardiac pains almost always occur in paroxysms and usually follow physical exertion, and at times psychical irritation, and show that their symptoms are caused by cardiovascular-renal changes. On examination they present the usual clinical signs; for example, in cerebral arteritis and Meniere's disease the patients complain of a dull pain, not throbbing, quite often describing it as a tight band compressing the head which occurs most frequently in the morning and is relieved on moderate exercise. The headaches of syphilis are continuous and are more severe at night and are usually relieved by antiluetic treatment. In the aged we find those who complain of tinnitus aurium with hypertension which is due to increased intracranial pressure which causes a rise in blood pressure reading. Another type of extreme interest is the patient who has a high degree of arteriosclerosis but no particular complaint, and who is able to attend to his usual vocation without any discomfort.

Another type of case is the one with a lowered blood pressure due to myocardial changes which gives readings of an average of 130 to 140 mm. systolic but usually a low diastolic, with high pulse pressure; these patients usually complain of headaches or pressure symptoms. The cause of this headache can be explained as a sclerosis of the coats since the cerebral arteries are terminal, would cause a narrowing of the lumen which produces an anemia of the cortex of the brain; the anemia then produces a vertigo and syncope. Why there should be a systemic lowered blood pressure is difficult to explain unless it is due to the weakening of the myocardium and arterial system, for this condition is often found in observations of complicated hypertensive cases when there is a sudden drop in the reading with no material physical or clinical improvement and the patient gradually becomes weaker and develops cardiac symptoms such as dyspnea, precordial pain, disturbance of rhythm, pulmonary edema and, if complicated with renal symptoms, marked edema with the usual urinary findings. The myocardium is then the paramount factor for, if the muscle is exhausted, decompensation or failure occurs.

Blood pressure in another type of case, while abnormally high, is more an attempt on the part of the vascular arterial system to maintain the circulation to various organs, especially the minute capillary system. This accounts for some of those patients who have an extremely high blood pressure but who give no symptoms of cardiac distress in following their

daily vocations, and their findings are obscure; they may have a simple compensatory left hypertrophy with a strong myocardial contraction, no particular urinary findings, especially albumin (or faint trace), but one or two granular casts with very moderate arterial findings and no chemical blood changes. Such a case should be considered as a pathological normal pressure and should be classified as individual, and no attempt should be made to materially reduce this blood pressure because the patient usually becomes much worse. He should be advised of his condition so he can live accordingly.

Attention may be called to another type of patient with a heart lesion and high blood pressure and yet he is unaware of any heart trouble; he complains only of indigestion, loss of appetite or epigastric symptoms such as slow digestion, fullness, pressure, burning, tightness after eating which is relieved by loosening the waist band; occasionally he complains of shortness of breath with palpitation. These symptoms depend upon slight circulatory disturbances in the region of the portal vein with intra-abdominal tension. The treatment here is not cardiac, but dietetic correction and elimination are advisable.

I wish particularly to stress that in highly nervous individuals who are subject to emotional or paroxysmal hypertension, two or three readings are advisable during examination for quite a difference is found in the readings, which is of diagnostic importance.

The more uncertain hearts are those with myocardial changes from toxic or bacterial infection as rheumatism, pneumonia, diphtheria, etc., in cases which previously showed high blood pressure and later a sudden drop in readings; they show myocardial failure and the prognosis is grave. A rapid decline in all pressures in cases of hypertension suggests arterial degeneration and myocardial failure; for example, in aortic regurgitation the pulse pressure is high showing a strain on the heart muscle, and when there is a sudden drop in the pulse pressure it shows myocardial weakening and is a grave sign.

The systolic pressure alone may give some idea of the vascular tension and a constant pressure of 150 to 160 mm. or higher at any age may in time cause renal symptoms with simple cardiac hypertrophy or damage to the cardiovascular system for it suggests a functional disturbance. The diastolic pressure, in my opinion, is a better guide to the prognosis than the systolic; a high diastolic shows advanced pathologic changes and the case may be termed malignant. Here may be an hypothesis for the term malignant hypertension, that is, when the diastolic readings are 110 to 120 mm. or over

and show a high pulse pressure with fundamental cardiovascular-renal disease, usually the case is terminal in character and a grave prognosis should be given if this condition persists and is not relieved by treatment. Therefore, in these cases with a high diastolic, the term malignant hypertension may be applied.

TREATMENT

We are aware of many factors being involved in the production of hypertension and as yet medical measures have not offered a satisfactory solution for relief; but the consideration mainly is the treatment of the individual.

Bromides with rest are recommended for the patient with an emotional state.

In another class one must realize that some who are very nervous and emotional from business affairs and physical stress should be allowed more activity even though rest in bed would be advisable and should be the dominant consideration.

Digitalis is indicated when there are myocardial changes evidenced by peculiarities in rhythm which show that function has been interfered with causing intermittence, irregularity and extrasystoles.

There has been an hypothesis offered to treat these cases surgically; what effects a sympathectomy will have and what the results will be are as yet under consideration, but I feel that the procedure should be mentioned.

DIET

The question of salt has been discussed generally and I do not feel that it is injurious enough not to season foods, except in urinary deficiencies or where there is great amount of edema. Tea and coffee have their antagonists but I do not see any plausible reason to forbid either, but allow moderate amounts unless they increase the emotional and nervous excitement of the patient or cause insomnia and interfere with rest; for do not tea and coffee contain such active drugs as caffeine and euphelin which are vasodilators and are supposed to exert a favorable effect on this condition? Use of tobacco depends upon the patient and what effect the abstinence has; if he becomes nervous and emotional, allow the use of cigars or cigarettes in moderation and instead of being harmful the effect is beneficial to his well-being or general welfare.

The special and economic obligations of the patient should always be considered.

Heredity is of great importance in hypertensive disease for in this study, with a few exceptions, all gave a family history of cardiovascular disease and cerebral hemorrhage as the cause of death.

DISCUSSION

DR. JOHN C. MORFIT, St. Louis: I probably am not competent to discuss the intricacies of the causes and treatment of hypertension but I know it is a problem of all medical men, specialists and others. I merely wish to report a case that occurred recently in St. Louis, in connection with the treatment of essential hypertension by surgical means.

A very obese patient of mine recently broke her big toe and that gave me an opportunity to get her into the hospital for rest, something I had been trying to do for several years. She often came into my office with a blood pressure of 240/120. One day she came in with a systolic of 275. She quieted down but I had a prominent internist who was a relative of the patient check up the case with me. It so happened that a day or so before, in the *Journal of the American Medical Association*, a surgeon had reported the removal of the adrenal gland in order to reduce blood pressure. Right after that in St. Louis there was a meeting of the Harvey Cushing Society at which there was a report and discussion of a case in which the sympathetic ganglia supplying the heart and chest were excised. I believe the first case of that kind that was done was about twelve months ago. I found this was a case that had no renal pathology, very little cardiac pathology, but it seemed to be a case of very high tension which had not yielded to other means of relief. I therefore felt justified in using this new surgical procedure on my patient and I got one of my younger surgical friends to do it because this is an operation akin to taking fly specks out of pepper. He cut down in the middle of the back between the shoulder blades and removed about one inch of the ninth and tenth, or tenth and eleventh ribs; he dissected back of the pleura and disclosed the chain of sympathetic ganglia which were removed. This was all done under avertin rectal anesthesia with novocain injection. As a result of the anesthetic the patient's blood pressure was within normal limits. It was lower on the table than it had been for years. However, that reduction in pressure undoubtedly was due to the use of avertin. When these sympathetic ganglia are cut, so the reports go, there is a sudden and violent reduction of blood pressure which is alarming to the operator. This did not occur with this patient on the table and she went back to bed, her blood pressure remaining down long enough for the effect of the anesthetic to wear off. After that, within 48 hours, the relationship was 220/120. There had been no sharp rise or fall of the blood pressure. It was complicated three days after by collapse of the left lung. How much of that was due to unknown puncture of the pleural membrane and how much to other causes, I do not know. It has been but three days since the patient was operated upon.

It is claimed that you can operate on one side, and if there is sufficient drop in blood pressure, all well and good; but if not you can duplicate the operation on the other side.

There is this definite result from this surgical procedure in this one case. This patient's blood pressure, while remaining high, has not reached its maximum; it has maintained a steady relationship with the pulse pressure, about 100 which of course is too much. The roentgen ray shows that the collapse of the lung has subsided and the patient is more comfortable. However, we feel very confident that this sympathectomy has not given as good results as we had hoped and we may have to anticipate a second operation. I believe this is the first time the operation has been done west of the Mississippi River since it was devised a year or so ago.

DR. JULIUS JENSEN, St. Louis: I do not think the

question of hypertension can ever be touched upon without causing a lot of thought. We have learned about the great variability in blood pressure but I want to point out that a lowered blood pressure does not necessarily mean weakness of the myocardium. I have had patients who had a systolic pressure of over 200 which would fall in the course of routine observation. I have also had occasion to see a patient (in 1929) who had been seen in 1919 by Dr. Rowntree and who had been seen many times during the ten years, with a blood pressure of from 180 to 190. She had a blood pressure of 180 when I saw her but at the end of an hour and a half of constant observation her pressure was 115/80. She had high blood pressure under excitement but when she quieted down the blood pressure was normal. So I think two or three readings are not enough, but very intensive and thorough study of the blood pressure is necessary to obtain a fair idea of its variations.

Regarding the operability of patients with high blood pressure very little is given in the literature on the subject, but available work seems to indicate that patients with high blood pressure, provided there is no marked kidney or cardiac damage, are fair risks for surgery. Two or three years ago, in preparation for a paper read to the American College of Surgeons, I took occasion to study 1000 cases with high blood pressure submitted to operation. They were observed as to the effect of the high blood pressure, and in that series there was no evidence that increase of blood pressure affects the operative risk provided there is no marked cardiac or renal damage, in which case the patient must be considered from an entirely different angle.

SPECIAL ARTICLES

THE FIRST YEAR'S OPERATION OF
THE TUMOR CLINIC AT FULTON
STATE HOSPITAL

FLOYD H. SPENCER, M.D.

ST. JOSEPH

DUDLEY A. ROBNETT, M.D.

COLUMBIA

and

ELLIS FISCHER, M.D.

ST. LOUIS

It was brought to the attention of the Eleemosynary Board that during the year 1932 facilities which had cost the citizens of the State \$20,000 had been utilized for the care of but six patients suffering from cancer. These patients were inmates of the state eleemosynary institutions and the treatment had been administered by physicians who had little interest in the treatment of cancer and who were totally untrained in the use of radiation.

During the summer of 1933 the Eleemosynary Board, Mr. W. Ed. Jameson, president, in a formal resolution requested the Cancer Committee of the Missouri State Medical Association to formulate a plan whereby the

facilities at the State Hospital at Fulton for the diagnosis and treatment of cancer might be made available to a larger number of citizens of the state.

When the Cancer Committee of the State Association received the request from the Eleemosynary Board a meeting was promptly called in St. Louis to devise ways and means to make these facilities more widely available. The greatest stumbling block was the act of the Legislature which made it imperative that in order to admit patients to any of the state hospitals they must be legally committed as insane or, in the case of the penal institutions, criminal. Since this act could not be immediately rescinded or ignored, the Cancer Committee, with the stimulating cooperation of Dr. R. C. Fagley, superintendent of the State Hospital at Fulton, decided to establish an ambulatory tumor clinic at Fulton.

The opening date of this clinic was September 20, 1933. A member of the cancer committee agreed to accept full responsibility for its operation. This entailed great sacrifice of time on his part, since it was necessary to make weekly trips to the clinic and not only examine patients but also train the personnel of the hospital in the application of radium.

In order to protect the clinic from abuse by other than really indigent patients, the cancer committee required that every patient presenting himself for treatment should submit an application on a printed form requiring certification by a physician who must be a member of the Missouri State Medical Association, and also by an accredited social service agency or county court.

That this service has been far-reaching in its usefulness and has led to a much wider application of the facilities for the treatment of cancer than had been previously obtained is attested by the appended report of the first year's operation of the clinic.

It can readily be seen that the effect of the work of the tumor clinic is hampered to a large extent by the impossibility of hospitalizing patients and it is the earnest desire of the cancer committee that some provision for hospitalization may be forthcoming. The possibilities for effective care of the indigent cancer patients in the state are infinite. There is hardly a county which does not number among its inhabitants a cancer patient who under the present facilities is doomed to lie largely unattended, with no trained nursing care available and with a

general lack of interest on the part of the county health officer and the family until death ends his suffering. Much can be done to alleviate the suffering of the hopeless cancer case, to give relief from repeated hemorrhages and foul discharges, by providing hospitalization for cases under the care of a medical and nursing staff interested and trained to provide the best that medical science today can offer; this will not only tend to make the last days of the incurable patient much more endurable but will relieve families and communities of a responsibility which they cannot be expected to assume. There is no reason why these patients should not be hospitalized in a state institution on the same basis that the insane or tuberculous patients are now admitted, with the cost of maintenance apportioned on a fair basis to the county in which the patient resides.

The recent cancer survey under the auspices of the American Society for the Control of Cancer has brought before the profession the present inadequate facilities for the care of the indigent cancer sufferer in the state. One of the recommendations which the Cancer Committee feels should be acted upon very promptly is the establishing of tumor clinics in the larger centers of population of the state. Such clinics can take a large part of the load from the state tumor clinic at Fulton both to the advantage of the patient and the local physicians; also, they will form an excellent clearing house for admission of patients to the state tumor clinic and would be invaluable toward the working out of an effective plan by which the indigent cancer patient can be given adequate care and treatment should it ever become possible to hospitalize cancer patients in the state institutions.

REPORT OF THE STATE TUMOR CLINIC*

During the first year from September 20, 1933, to September 20, 1934, eighty-six patients applied for treatment to the Clinic; seventy were admitted and sixteen were too advanced for treatment.

| | |
|---------------------------------------|----|
| From the State Hospitals..... | 21 |
| (21 patients from different counties) | |
| Callaway County | 22 |
| Carrol County | 1 |
| Phelps County | 1 |
| Newton County | 1 |
| Audrain County | 2 |
| Lawrence County | 1 |
| Monroe County | 4 |
| Cole County | 3 |
| Miller County | 2 |
| Marion County | 1 |

* This report was made by Dr. Dudley A. Robnett, Columbia.

| | |
|-----------------------|----|
| Randolph County | 2 |
| Pettis County | 1 |
| Pulaski County | 1 |
| Howard County | 1 |
| Boone County | 2 |
| Ralls County | 2 |
| Macon County | 1 |
| Chariton County | 1 |
| Total | 70 |

These forty-nine patients came from eighteen counties and if we separate the state's twenty-one patients we have thirty-nine counties represented.

Seventy-four growths were treated: Sixty-two with radium, twelve by surgery.

Of cases treated fifty-four obtained satisfactory results (apparent cure).

Ten advanced, given palliative treatment, improved.

Five showed improvement, but not hopeful for cure.

Five showed improvement with possible cure.

Classification of tumors: Lip 5, tongue 2, skin 59, breast 11, uterus 5, testicle 1, osteoma mandible 1, papilloma larynx 1, pharynx 1.

Each case admitted has had a properly executed admission form with affidavits of his local physician, a member of the Missouri State Medical Association, and the county court of his or her respective county or of some recognized social agency stating the patient's indigence. Patients coming to the clinic without such credentials whether indigent or not have been advised to consult their local physician.

The clinic has enjoyed the most splendid cooperation of the Eleemosynary Board, the superintendent and resident and consultant staffs of the state hospital, and the Callaway County Hospital.

To date practically all cases have been ambulatory, but where hospitalization was necessary cases were admitted to the Callaway County Hospital at ward rates paid by the patient's family, a county court or some other agency.

Inasmuch as the clinic's facilities are limited at the present time physicians having cases they wish to refer should write to the tumor clinic, State Hospital, Fulton, Missouri, describing the case. If a given case is suitable for treatment and eligible the patient should come to the clinic any Wednesday afternoon between 1 and 3 bringing a properly executed admission form.

Without doubt the clinic's facilities will in the near future be increased by the addition of a deep roentgen ray therapy unit and some means of hospitalization. Until then only cases suitable for treatment with 100 milligrams of radium and ambulatory surgical cases can be cared for.

CANCER SURVEY OF MISSOURI

FRANK LESLIE RECTOR, M.D.

Field Representative of the American Society
for the Control of Cancer

NEW YORK, NEW YORK

Some states have passed legislation on the subject of cancer control and others will probably do so in the near future. In this connection certain provisions in the Massachusetts law placing the cancer program under the State Department of Health may be of interest. Section 2 of chapter 391 of the Acts of 1926 of Massachusetts provides:

The department shall establish and organize cancer clinics in such parts of the commonwealth as it may be most advantageous to the public health and shall conduct such clinics with or without cooperation of the municipalities, local physicians, or other agencies.

Article XVIII, section 346, of the public health law of New York providing for the functions and activities of the State Institute for the Study of Malignant Diseases states that

The institute shall conduct investigations of the cause, mortality rates, treatment, prevention and cure of cancer and allied diseases. There may be received free of charge in its hospital for study, experimental or other treatment, cases of cancer and allied diseases. The commissioner of health shall publish from time to time the result of its investigations for the benefit of humanity and he shall, from time to time collate its publications in a scientific report for distribution to scientific bodies and to medical scientists and qualified members of the medical profession.

Section 349 of this same article provides for the Division of Cancer Control as follows:

There is created in the state department of health a division of cancer control, of which the state institute for the study of malignant diseases shall be a part. The commissioner of health through the division of cancer control shall continue to conduct investigations of the cause, mortality rate, treatment, prevention and care of cancer, and allied diseases, including the nature and expense of the facilities available in the several counties and cities of the state, for the diagnosis and treatment of these diseases, and shall cooperate with local health authorities, physicians, hospitals, clinics and voluntary associations, in the development of suitable facilities for the diagnosis, treatment, and control of cancer.

The Division of Cancer Control of the Detroit Department of Health has been engaged in the follow-up of cancer patients treated in the hospitals of that city. Recently this work has been made a joint responsibility of the Health Department and local medical society.

With cancer incidence rising throughout the country it would seem desirable for

health departments to contribute so far as resources permit to a study of the problems associated with this disease. More accurate causes of death on death certificates might well be insisted upon. Doubtless many deaths among the aged are in reality due to cancer even though the immediate cause of death may be noncancerous. A greater number of autopsies, especially on elderly patients, would undoubtedly reveal cancer where it was not openly evident. Many physicians refrain from autopsies on the aged when they urge them on persons in middle life. By educational activities and cooperation with medical and hospital groups, health departments can stimulate a wider interest in autopsies and more accurate death certificates, in time resulting in more accurate antemortem diagnoses.

By bringing the significance of early signs and symptoms of cancer to public attention through department publications and reports and other educational channels, as the press and radio, health departments can make a definite contribution to the treatment of cancer in early and hopeful stages and to its prevention. There are economic problems concerning both the patient and his family that require attention from medical, health and social welfare groups. The health department can contribute to the solution of these problems by cooperating with other interested groups and agencies.

Official health agencies usually have available facilities for obtaining much factual information regarding cancer as well as other diseases with which they may be primarily concerned. Although some officials and students in the public health field may feel that contact with the cancer problem, except in its broadest aspects, is outside the province of a health department it is believed that such departments have, or should have, a keen interest in any disease responsible for 10 per cent or more of all deaths in communities under their control. Just because the cancer problem has not been considered of importance in health department activities is no reason why with increasing knowledge about the disease and changing conditions under which it is being handled such departments should not be identified with prevention and control measures. Details of participation in such work will vary with the communities in which the work is done and cannot be indicated until full information is available about each local situation.

Cancer Morbidity Statistics.—Cancer morbidity statistics in general are wanting and the only information available on the can-

cer problem is that given by mortality records. Morbidity figures are needed to check death certificates, to stimulate earlier diagnosis, to raise the standard of treatment and to augment our clinical knowledge of the disease.

For some reason the collection of morbidity statistics has been ignored by the agencies most concerned in this work. A few hospitals are specializing in cancer treatment and it is from these that available statistics are being received. As one of the essentials of acceptable tumor clinics such as are now being organized in general hospitals is the keeping of accurate and adequate records, it is expected that soon a considerable body of information from this source will be available on cancer morbidity. However, it will be necessary to increase the sources of this information much beyond their present number and scope before their value will in any way approach that of other diseases.

In the absence of definitely known etiological factors, the most promising attack on cancer is through the collection and analysis of all possible information bearing on it. Hospitals and physicians in private practice should take full advantage of their opportunities to record in detail the factors, both primary and collateral, that relate to their cancer patients.

ORGANIZED CANCER SERVICE

Surveys made by the American Society for the Control of Cancer have shown that the average general hospital does not have, nor can it be expected to have, adequate facilities for the diagnosis and treatment of malignant diseases. The small number, from 2 to 3 per cent, of such patients cared for, the cost of necessary equipment, especially deep therapy and radium, the absence of staff members with training and experience to insure competency in diagnosis and treatment all suggest that the hope for an improved service to these patients rests in the development of adequate facilities in a few institutions where satisfactory work can be done.

In cooperation with the American Society for the Control of Cancer, the American College of Surgeons through its Committee on Treatment of Malignant Diseases has outlined the following types of institutions for the treatment of cancer:

1. Cancer institutes
2. Cancer hospitals
3. Cancer clinics in general hospitals
 - a. Complete cancer clinics
 - b. Diagnostic cancer clinics.

The quotations that follow, unless otherwise noted, are taken from the pamphlet of the American College of Surgeons entitled "Organization of Service for the Diagnosis and Treatment of Cancer," June, 1931.

Cancer Institutes.—A cancer institute is an organization equipped with hospitals and laboratories especially organized and conducted for carrying on research in relation to the nature of cancer and its diagnosis and treatment as well as for the clinical diagnosis and treatment of actual cancer patients. Institutes of this nature require very considerable endowments or such generous annual appropriations as can be obtained, usually only from the state or national government. They are undoubtedly the most effective method of dealing with the cancer problem, but their cost is such that their number will inevitably be somewhat restricted.

Cancer Hospitals.—Cancer hospitals are devoted exclusively to diagnosis and treatment of cancer and allied diseases. They differ from cancer institutes in that major emphasis is placed upon clinical work rather than upon research. At the present time not more than twelve such hospitals are found in this country.

Such organizations require a very considerable financial support either by endowment or by annual appropriation. Hospitals of this nature may be supported by the State Department of Health, as in Massachusetts, by state universities, as is the Cancer Institute of the University of Minnesota; or partly by endowment and partly by annual subscription as in the case of those organized under private enterprise. Institutions of this nature are coming into existence as special departments of existing hospitals in many places.

Cancer Clinics in General Hospitals.—Where funds sufficient for the maintenance of cancer institutes, research laboratories, or special cancer hospitals are not available, the demand for improved service for cancer cases has resulted in the organization of special cancer clinics in existing general hospitals and of cancer diagnostic clinics in many places. The reason for the organization of these special cancer clinics is primarily the fact that the field of cancer diagnosis and cancer treatment has developed so widely in the past few years that only by the organization of a group of representatives of the different departments of a hospital can the full resources available at the present day for the treatment of cancer be made accessible to the individual patient. Many general hospitals are equipped with the material and apparatus needed for the treatment of cancer, including high voltage X-ray, and a sufficient amount of radium, but a separate organization is required to make this equipment available for the cancer patient and to secure the necessary consultation and cooperation from the different members of the hospital staff who are interested and competent in this field.

Cancer Diagnostic Clinics.—Hospitals unable to meet fully the requirements for a cancer service as outlined previously but which have staff members interested in cancer and a laboratory with equipment and personnel able to interpret the histological findings may offer a cancer diagnostic service of value to the community.

Cancer diagnostic clinics may be organized in smaller communities where modern X-ray equipment and an adequate supply of radium is lacking. The object in establishing such a clinic is to provide better diagnoses upon cancer patients, to furnish a group judgment concerning the proper means of therapy to be employed, and to educate the medical public concerning this important group of diseases. Medical men in the community should be encouraged to bring patients to such a clinic, accompanied by a complete record of the history and physical examination. When a diagnosis shall have been reached and a line of treatment suggested, the surgeon or physician will be free to continue the care of his own patient as he may see fit.

Minimum Standard.—The American College of Surgeons* has promulgated minimum standards for cancer clinics in general hospitals. These standards can be put into effect in whole or in part as local conditions indicate. They are as follows:

1. *Organization.*—There shall be a definite organization of the service, and it shall include an executive officer and representatives of all the departments of the hospital which are concerned in the diagnosis and treatment of cancer. The services of a secretary and of a social service worker shall be available.

2. *Conferences.*—As an essential feature of the service, there shall be regular conferences or consultations at which the diagnosis and treatment of the individual cases are discussed by all members of the clinic who are concerned with the case.

3. *Patients.*—Reference to the cancer clinic of all patients in whom the diagnosis and treatment of cancer is to be considered shall be either voluntary or obligatory in accordance with the vote of the medical staff or of the governing board of the hospital.

4. *Equipment.*—In addition to the diagnostic and therapeutic surgical equipment which is required in every approved general hospital, there shall be available an apparatus for X-ray therapy of an effectiveness which is generally agreed upon as adequate, and an amount of radium sufficient to insure effective treatment.

5. *Records.*—In addition to the records which are required in every approved general hospital, there shall be additional records of:

(a) The details of the history and of the examination for cancer in different regions of the body, such as are indicated on the form records which are recommended by the Committee on Malignant Diseases, American College of Surgeons.

(b) The details of the treatment by radium or X-ray as indicated on the form records which are recommended by the Committee on Malignant Diseases, American College of Surgeons.

(c) Periodic examinations at intervals for a period of at least five years following treatment.

6. *Treatment.*—The treatment of cancer patients shall be entrusted to members of the staff of the cancer clinic except in cases in which adequate treatment in accordance with the collective recommendation of the staff of the cancer clinic can be procured otherwise.

A discussion of some of the problems connected with an improved service for cancer patients, especially with some of the personnel problems involved, may be in order.

* Surgery, Gynecology and Obstetrics, June, 1931. Also published as a separate pamphlet by the College.

Pathologist.—While it does not come within the scope of this report to evaluate the training and ability of pathologists properly to interpret cancer tissues, it may be well to point out that special training and considerable experience are necessary to competency in this field. While the preparation and staining of tissue may be carried out by a technician, the best interests of the patient can be served only when the interpretation of that tissue is made by a physician with adequate training and experience in this special field.

The training and experience necessary for accurate interpretation of tumor tissue is much beyond that requisite for many other branches of clinical pathology and the physician who equips himself for this form of medical practice should be granted better recognition in the staff organization than he now receives in many hospitals. As he is unable to share in fees collected by the surgeon and diagnostician, although a major responsibility for proper diagnosis and treatment often rests on him, he should receive remuneration in keeping with these responsibilities. The pathologist is one of the key men in an adequate diagnostic cancer service and men competent in this field cannot be expected to enter it unless their position is recognized and their remuneration more in keeping with their ability and responsibility than now prevails in many cases.

The pathologist to be capable in the diagnosis of tumor tissue must at times move out of the laboratory and into the ward and operating room. He should see the patient at the bedside and have a voice in the decision on biopsy and where one should be taken if indicated. If biopsy is to follow exploratory incision he should select the tissue for examination and by frozen sections tell the surgeon just what he is dealing with so that indicated procedures can be effectively carried out. Chemical analysis of secretions and excretions often throws much diagnostic light on the character of the tumor. The pathologist must be able to interpret the physiologic, chemical, physical and clinical observations in addition to the microscopic picture of the stained specimen. If he is confined to his laboratory seeing only such tissues as are submitted to him he cannot do justice to his work or to the patient. His interpretations are all the more valuable when he has the added clinical experience and information that a consultation on these cases would give.

The attempt to develop a special cancer service in hospitals without laboratory

equipment for tissue diagnosis and personnel to interpret such examinations would be a procedure of doubtful value. A false sense of security in the reliability of diagnostic procedures would be engendered that would make for delay in securing adequate treatment in many cases.

The qualifications of a clinical pathologist are given in the *Journal* of the American Medical Association, October 14, 1933, page 1233, as

One who is a graduate in medicine having had satisfactory training and experience in pathology, chemistry, bacteriology, or other allied subjects for at least three years subsequent to graduation, who is in good standing and has been duly licensed to practice medicine.

The pathologist shall be on a full or part-time basis with a laboratory for the practical application of one or more of the fundamental sciences by the use of specialized apparatus, equipment and methods, for the purpose of ascertaining the presence, nature, source, and progress of disease in the human body. He shall devote the major portion of his time to work in this field.

The pathologist may make diagnoses only when he is a licensed graduate of medicine, has had satisfactory training and experience in pathology for at least three years subsequent to graduation from medical college, is reasonably familiar with the manifestations of disease, and is competent to make reliable reports.

Roentgenologist.—There is a wide difference of opinion among roentgenologists as to the optimum dosage of deep roentgen ray in cancer therapy. Some hold that voltages of 150,000 or less are as penetrating, if applied over a sufficient length of time, as voltages of 200,000 or more. It is realized that this question is still undecided but undoubtedly the trend is toward higher voltages and heavier filtration. The majority of hospitals devoted exclusively to treatment of cancer and allied diseases, as well as the minimum standards of the American College of Surgeons for the treatment of malignant diseases, have set 200,000 volts as a minimum for acceptable deep therapy. Voltages of 700,000 and more have been installed in New York, Detroit, Chicago, Lincoln, Nebraska, Seattle and Los Angeles and equipment of still higher voltages is reported under construction or projected.

Of equal importance with installation of deep therapy equipment is the frequent calibration of the tubes to see that the indicated voltage is being delivered. Such measuring devices should be attached at all times to such equipment but where this is not feasible the output of the tube should be measured at regular intervals.

Dangers arising from the use of this highly specialized form of therapy by phys-

icians without adequate training in either the physics or therapeutics of its application should be emphasized. A powerful force, about which much remains to be known, is brought into play when deep therapy treatments are given. Not only should the operator be thoroughly familiar with the general physical and therapeutic reactions of this force upon the human system but he should appreciate differences in reaction that take place in different individuals. The use of such equipment for additional revenue without a thorough knowledge of its physiological effects cannot be defended on any grounds of medical science. The welfare of the patient must be held paramount to all other considerations entering into his treatment and the use of roentgen ray for any other purpose does much to discredit the legitimate use of this form of therapy in the hands of capable physicians.

The qualifications of a roentgenologist are given in the *Journal* of the American Medical Association, February 24, 1934, page 607, as follows:

The candidate shall be a graduate of a medical school that is approved by the Council on Medical Education and Hospitals and shall be licensed to practice medicine in the state in which his department is located. He shall also have had special training, such as is approved by the Council in radiology, roentgenology, or radium therapy at an acceptable school—preceptorship, hospital or clinic, department of radiology, roentgenology or radium therapy—for a period of at least three years. He must be a man of good standing in the medical profession, and particularly among those specializing in radiology. He shall either be on a full-time basis or have definite hours of attendance at the department, such hours to be ample to insure the element of medical consultation in every examination or treatment.

In its "Hospital Standardization Report for 1933," page 29, the American College of Surgeons lists the qualifications of a roentgenologist as follows:

The director of the X-ray department must be a graduate physician, licensed to practice medicine, ethical, in good professional standing, and having had special training in radiology. He shall be responsible not only for general supervision of the department, but for interpretation of all findings. Radiotherapy must also be under supervision of a skilled physician. . . . At all times the utmost cooperation between the radiologist and the medical staff is desirable. The former should not only be present at clinical conferences, but should also take an active part in the discussion since his contribution may be of distinct value in furthering the education of the staff.

In addition to the qualifications just cited a new examining board for certifying specialists in radiology, the American Board of Radiology, recently has been formed. Its

purpose is to examine and certify physicians as specialists in this field after they have passed a satisfactory examination by the board having the matter in charge. The first examination is to be held during the summer of 1934. In time a list of radiologists holding the board's certificates will be available for hospitals, medical organizations and the public

to assist in protecting the public against irresponsible and unqualified practitioners who profess to be specialists in radiology.

Each applicant must establish to the satisfaction of the board that he is of high ethical standing, that he is a graduate of a medical school approved by the board, that he is a member of at least one of the societies that appoint members of the board, that he has had satisfactory experience in the practice of radiology, and that he is a physician duly licensed to practice medicine.*

Radium Therapist.—Radium is one of the newest and most powerful agents known to medical science and its possibilities for harm, when used by physicians without adequate training and experience, are so great that its application to human patients should be surrounded by all the safeguards medical science can suggest. Objections raised to the use of radium are dependent largely on poor results obtained in the hands of inexperienced users. Failure by the profession in general to use this agent is more to be commended than criticised and only brings out in marked contrast the unsatisfactory results obtained by physicians who use radium occasionally without any preparation or experience. As the proper use of radium and radon requires a high degree of skill and training and a special knowledge of their effects on human tissue, the welfare of the patient usually is better safeguarded by accepted surgical procedures than by irradiation at the hands of untrained physicians.

The use of rented radium by untrained physicians is a procedure for which no commendation can be offered. More often than not such physicians have had no special training in the use of radium and the patient will receive little lasting benefit from such treatment. The mere possession or use of radium is no more a criterion of competency in that field than would the possession of surgical instruments indicate competence as a surgeon.

Medical publications could render a distinct service in the control of this problem by refusing advertisements of organizations offering to rent radium indiscriminately.

* *Journal American Medical Association*, p. 642 (February 24) 1934.

As the public becomes better informed regarding the necessity for adequate experience on the part of those offering irradiation therapy, and as the medical profession more fully realizes the intricate problems surrounding this form of therapy, present abuses will be eliminated and an improved service rendered to cancer patients.

As far as is known no hospital or cancer institute in this country having radium or producing radon will permit its use by other than qualified members of its own staff.

In the Province of Saskatchewan, Canada, radium has been made available by legislative appropriation. Its use is controlled by a commission of three physicians and it can be used only under the personal direction of the radiotherapist member of the commission. Physicians must bring or refer their cancer patients to the clinics maintained by the commission. Regulations governing the care of radium supplies issued by the Saskatchewan Cancer Commission provide that

17. Where a medical practitioner desires the use of radiotherapy on a patient, the equipment of the Commission may be made available under the following conditions: The case shall be submitted to the consultative diagnostic clinic, and, (a) its recommendations for the use of radiotherapy obtained; (b) the radium to be applied under the direction of the radiotherapist of the clinic; and (c) the fees for the use of the radium to be paid, as prescribed by the Commission.

The educational qualifications of a radium therapist are the same as those of a roentgenologist and the examination of the American Board of Radiology will apply to radium therapists as well as to roentgenologists.

Social Service.—Social service work is of primary importance in an acceptable cancer service. It is most important that all cancer patients be followed carefully over a long period subsequent to their treatment either by private physicians or by hospitals. At the present time too little is known about the health of cancer patients after treatment and, as a knowledge of their subsequent condition is the only practical criterion of the effectiveness of their treatment, it is essential that facilities be provided for obtaining periodic information regarding such cases.

This work can best be done by a well trained and experienced medical social worker who will not only relieve the physician of a responsibility which at times is most difficult for him to discharge without seeming to be too solicitous about his patients, but will assist in the gathering of data most necessary to a further and better understand-

ing of present methods of diagnosis and treatment of cancer patients.

The functions of a social service department in a tumor service may be summarized as follows:

1. To the patient and his family make clear just what is involved in the plan of treatment and assist when needed in carrying out the plan. Study social and economic problems involved and suggest a plan for their solution. Stimulate the morale of patients and encourage them to continue under observation and treatment.

2. Inform the physician in charge of the case of the social and economic problems involved and the personality factors that should be considered in treating the case.

3. To the community, the cancer service, its policies and procedures, can be presented in an understanding manner as can also the needs of the patients being cared for. The relationship of the community to the entire cancer problem can be exemplified at times by a single case involving the attention of various medical and social agencies.

In the absence of medically trained social workers public health nurses or visiting nurses can often obtain the necessary information regarding cancer patients. In the course of their daily work they may discover information of value to physicians and hospitals having an interest in these cases.

Some authorities say that no attempt should be made to organize a special tumor service until trained social workers are available. In the "Report of the Royal Commission on the Use of Radium and X-Rays in the Treatment of the Sick of the Province of Ontario," it is stated on page 102

That in the successful treatment and control of cancer, it is essential that every patient be closely followed up so that he or she may be induced to return for observation at regular intervals. For this purpose every centre should possess an Active Service. The duties of a Social Service should include not only the keeping track of patients and bringing them to the treatment centre, but also the supervision of home conditions, and the securing for such cases of moral, and, if required, financial aid.

Again, on page 106 of this same report the Commission recommends

That, in connection with every centre, the most careful and exact records of cases be kept, and that a Social Service be maintained for the purpose of "following up" all patients.

Records.—In addition to the professional facilities suggested for specialized tumor services in general hospitals, adequate provision should be made for recording not only the regular data found in all well kept hospital records but additional information regarding cancer. To be of the most value such records should be comparable for all hospitals so that an increasing volume of

accurate information about cancer gradually will develop. The American College of Surgeons has formulated a cancer record that it will gladly place at the disposal of any hospital. This blank offers a uniform method of record keeping and may well form the basis of the record adopted in an organized tumor service.

The record clerk might well act as clinic clerk while patients are being examined. By so doing a clearer insight can be obtained of the patient's problem which should result in a more comprehensive recording of all essential data bearing on the case. The record department should work in close cooperation with the social service department in coordinating and analyzing information for the clinic staff and attending physicians.

The accompanying chart indicates some of the functions and relationships of various elements in an organized tumor service. The ultimate type of organization will depend upon the needs of each group.

CANCER PREVENTION AND CONTROL IN MISSOURI

The following facts bearing on the cancer problem in Missouri have been developed in this survey.

While the general death rate of the state is declining in keeping with other sections of the United States the cancer death rate is rising. The increase in the cancer death rate during the last twenty years has been 67 per cent while the increase in population of the state during this same period has been but 10 per cent.

Ninety-three counties containing nearly 40 per cent of the population of the state are without hospitals of 25 bed capacity or more. Some of these counties have fairly easy access to hospitals in larger population centers by automobile and rail transportation but other counties are remotely situated in this regard. This situation limits the development of special tumor services to a comparatively few localities where hospital facilities and personnel are available.

Analysis of cancer admissions to the general hospitals of 25 beds and over shows that

3009 cancer patients were hospitalized during 1932. Of this number 698 died of which 318, or 45.5 per cent, came to autopsy.

All general hospitals in Missouri admit cancer patients although in one or two hospitals such patients, when possible, were referred elsewhere for treatment.

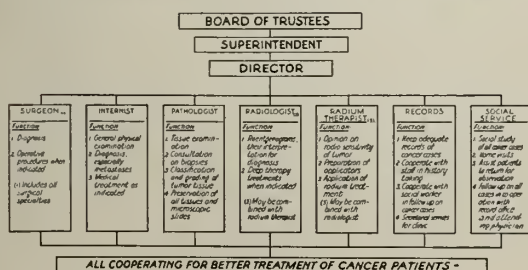
Twelve hospitals reporting in this survey are without laboratory facilities for tissue examination. Nine of these hospitals however send all or selected tissues to pathologists of recognized standing. Medically trained pathologists devoting all or a major portion of their time to laboratory work were found in Boonville, Clayton, Columbia, Jefferson City, Kansas City, St. Joseph, St. Louis and Springfield.

Until the reduction in budget made it necessary to ask a fee for such work a tissue diagnostic service for the physicians of Missouri was rendered by the department of pathology of the University of Missouri without charge. This service was designed for charity patients only. It was found however that some of the profession of the state looked upon this service as an official state activity for the examination of any tissue submitted without reference to the ability of the patient to pay, whereas it was intended by the pathologist as a personal service to charity patients only. Recently it has been necessary for the pathologist to make a minimum charge for such examinations although he offers free examination of tissues for charity patients if the physician referring such tissues certifies that he in turn is rendering a gratuitous service to these patients.

If all tissues now discarded by the hospitals in Missouri were examined undoubtedly some diagnoses and treatments would be changed to the benefit of the patient. A few hospitals reported that present economic conditions would not permit routine examination of all removed tissues and they were obliged to use their best judgment in selecting tissues to be examined.

With full appreciation of the present financial situation throughout the state, it is felt that no commendation can be offered those hospitals and surgeons who summarily discard removed tissues without having them examined by a competent pathologist. In such cases the interest of the patient might be better served if indicated surgical procedures were deferred, barring emergencies, until the patient could reach an institution where adequate laboratory facilities are available. As an alternative arrangements might be required of all hospitals for the examination of removed tissues in acceptable

CHART OF ORGANIZATION FOR CANCER SERVICE IN GENERAL HOSPITALS



laboratories with reports returned at the earliest possible moment. Were such facilities available to all hospitals and practitioners of the state many physicians in rural communities without hospital facilities would be able to render a more adequate service to their patients.

At a recent meeting of the board of directors of the American Society for the Control of Cancer a resolution was passed stating that in the absence of adequate laboratory facilities for the examination of tumor tissue such facilities should be provided by the state.

From the information gathered in this survey the conclusion seems warranted that in many Missouri hospitals neither hospital executives nor staffs are actively interested in securing autopsies. In some cases the lack of a pathologist or interns on the staff may account for the small number or absence of autopsies. The fact that in some hospitals the percentage of autopsies runs very high and in others but few are obtained indicates that autopsies can be had if the matter is approached in the proper manner.

It is believed that were concerted efforts made by the physician in charge of the case, the intern and pathologist when available and the hospital authorities, the number of autopsies in many Missouri hospitals could be increased materially. Community opposition to such procedures, where it really exists, could soon be overcome by tactful measures on the part of those most interested in the problem.

In connection with an improved service for examination of tumor tissues and autopsy material it would be well to establish tumor registries in Kansas City and St. Louis. Such a registry should contain a stained and mounted section of tissue, the block from which the section was cut, a short description of the tumor and a concise clinical summary of the case. The registry collection should be available at all times for study by reputable physicians, medical students and scientists interested in allied subjects.

The pathologists of Kansas City now meet at regular intervals for the study of problems in their special field and the organization of a tumor registry in this city whereby all such material would be readily available to these pathologists should not prove a difficult undertaking.

No organization of pathologists in St. Louis was found similar to that in Kansas City. However, there is a sufficient number of physicians specializing in pathology in St. Louis to make such an organization de-

sirable. These men do the pathological work in St. Louis hospitals and the available material would provide an unusual opportunity for study and improvement in tumor tissue diagnosis if it were properly organized for this purpose.

Similar registries have been established at the State Laboratory of Hygiene, Madison, Wisconsin; at Lankenau Hospital, Philadelphia; in Washington, D. C.; Peoria, Illinois; Toledo, Ohio, and elsewhere. National registries already established are: The Registry for Bone Sarcoma, American College of Surgeons, Chicago, Illinois; Registry for Lymphatic Diseases, Registry of Bladder Tumors, and Registry of Eye Tumors at the Army Medical Museum, Washington, D. C.

Four general hospitals in Missouri are developing special tumor services along the lines recommended by the American College of Surgeons. Menorah Hospital in Kansas City has deep therapy and radium and four beds subsidized for the treatment of indigent cancer patients. Meetings of the tumor service are held regularly. An arrangement is now in effect between Menorah and Kansas City General hospitals whereby patients in the latter hospital needing radium are transferred to Menorah Hospital for such treatment. In return Menorah sends to Kansas City General Hospital certain indigent noncancer patients. In Barnes Hospital, St. Louis, a tumor service is functioning in the surgical department and in the Washington University Clinic, affiliated with Barnes Hospital as its outpatient department, there is an organized tumor service in the department of gynecology. In DePaul Hospital, St. Louis, plans are developing for a tumor service to meet the needs of that institution. In City Hospital No. 1, St. Louis, an effort is made to have tumor patients seen by two or three staff members before therapy is undertaken. Because of frequent rotation of staff personnel organization of a permanent tumor service has not been completed in this hospital.

In none of the above hospitals are these special tumor clinics meeting fully the minimum standards of the American College of Surgeons although in each institution this objective is definitely in view and is being approached as rapidly as conditions permit. Conditions in the different institutions under which these tumor services function vary so markedly that it is difficult to reach the minimum standards until the work has been under way for some time.

(To be continued in the March issue.)

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FEBRUARY, 1935

EDITORIALS

TUMOR CLINIC AT FULTON

The attention of our readers is called to the informative article covering the first year's operation of the tumor clinic under the direction of the Cancer Committee of the Missouri State Medical Association at State Hospital Number 1 at Fulton.

The fact that the facilities of this clinic were utilized by citizens from forty counties of the state during the first year of operation is indicative of the state-wide need served by the clinic.

The Eleemosynary Board is to be highly commended for its alertness in utilizing to the better interest of the citizenry of the state facilities provided by state funds; and the State Medical Association should be gratified in the realization that their Cancer Committee has served the State so well.

PROGRESS OF PLANS FOR ECONOMIC SECURITY

Under this caption the *Journal of the American Medical Association* discussed the plans of President Roosevelt and the Congress looking toward relief of that portion of the people of the country represented in the low income group. This editorial presents the problem in such understanding fashion that we have taken the liberty of reprinting the entire comment. Only about 50 per cent of our members are fellows of the American Medical Association and even a large number of these members may overlook the importance of this particular approach to this subject which is so all absorbing from the economic standpoint at this time. The other 50 per cent of our members

we hope will read the editorial and thus be informed on the steps that are being taken by the medical profession and the Government in the solution of these questions.

The House of Delegates of the American Medical Association has been called into extraordinary Session to hear the report of the Board of Trustees and other committees who have been laboring upon the solution of these important problems. The business to be transacted at this special Session shall be limited to the consideration of the social and economic policies of the Association as related to pending and proposed legislation, to sickness insurance and to other matters which may be submitted by the Board of Trustees.

This meeting of the House of Delegates will convene in Chicago on the morning of February 15 and will remain in session from day to day until its deliberations are concluded.

The editorial referred to follows:

The suggestion made by President Roosevelt in June, 1934, that the chief objective of the present Congress would be the enactment of legislation leading to greater economic security for the American people began to find its fulfillment on Jan. 17, 1935. On that day he sent to Congress a message relative to unemployment insurance, old age pensions, federal aid to dependent children, the support of existing mothers' pension systems, appropriations for services for the protection and care of homeless, neglected, dependent and crippled children, and finally additional aid by the federal government to state and local public health agencies and for the strengthening of the federal Public Health Service. As was recently pointed out in an editorial in the *Journal*, the problem of sickness insurance is more difficult. Of this the President has just said specifically:

I am not at this time recommending the adoption of so-called "health insurance," although groups representing the medical profession are cooperating with the federal government in the further study of the subject and definite progress is being made.

Coincident with the message to Congress by the President came a message from the Committee on Economic Security to the President and the report that it submitted to the President. The committee, which includes as chairman Frances E. Perkins, Secretary of Labor, and Henry Morgenthau, Jr., Secretary of the Treasury; Homer Cummings, Attorney General; H. A. Wallace, Secretary of Agriculture, and Harry Hopkins, Federal Emergency Relief Administrator, indicates again in its report the difficulties inherent in a sickness insurance program but seems to forecast quite definitely its plans in relationship to this problem. Thus it says:

As a first measure for meeting the very serious problem of sickness in families with low income we recommend a nationwide preventive public health program. It should be largely financed by state and local governments and administered by state and local health departments, the federal government to contribute financial and technical aid. The program contemplates (1) grants in aid to be allocated through state departments of health to local areas unable to finance public health programs from state and local resources, (2) direct aid to states in the development of state health services and the training of personnel for state and local health work, and (3) ad-

ditional personnel in the United States Public Health Service to investigate health problems of interstate or national concern.

The second major step we believe to be the application of the principles of insurance to this problem. We are not prepared at this time to make recommendations for a system of health insurance. We have enlisted the cooperation of advisory groups representing the medical and dental professions and hospital management in the development of a plan for health insurance which will be beneficial alike to the public and the professions concerned. We have asked these groups to complete their work by March 1, 1935, and expect to make a further report on this subject at that time or shortly thereafter. Elsewhere in our report we state principles on which our study of health insurance is proceeding, which indicate clearly that we contemplate no action that will not be quite as much in the interests of the members of the professions concerned as of the families with low incomes.

The committee proceeds somewhat further along in its report to a brief consideration of so-called health insurance, which still more elaborately hints at what is contemplated. Apparently the technical advisory staff of the Committee on Economic Security has made studies of the compulsory sickness insurance plans already established abroad. It has considered the possibilities of voluntary insurance and rejected them, as well as the possibility of ordinary commercial insurance. It has already, it seems, prepared the basic principles for a tentative plan of insurance believed adequate for the needs of American citizens with small means and appropriate to existing conditions in the United States. These are said to have been submitted to the professional advisory groups organized for the purpose, already described in the *Journal*; the advisory groups have requested an extension of time and the extension has been granted until March 1. The statement is made that "arrangements have been effected for close cooperative study between the committee's technical staff and the technical experts of the American Medical Association." In its report submitted to the President, the Committee on Economic Security offers the following information to the professions and to the public as to the main lines along which its studies are proceeding:

1. The fundamental goals of health insurance are: (a) the provision of adequate health and medical services to the insured population and their families; (b) the development of a system whereby people are enabled to budget the costs of wage loss and of medical costs; (c) the assurance of reasonably adequate remuneration to medical practitioners and institutions; (d) the development under professional auspices of new incentives for improvement in the quality of medical services.

2. In the administration of the services the medical professions should be accorded responsibility for the control of professional personnel and procedures and for the maintenance and improvement of the quality of service; practitioners should have broad freedom to engage in insurance practice, to accept or reject patients, and to choose the procedure of remuneration for their services; insured persons should have freedom to choose their physicians and institutions; and the insurance plan shall recognize the continuance of the private practice of medicine and of the allied professions.

3. Health insurance shall exclude commercial or any other intermediary agents between the insured population and the professional agencies which serve them.

4. The insurance benefits must be considered in two broad classes: (a) cash payments in partial replacement of wage loss due to sickness and for maternity cases, and (b) health and medical services.

5. The administration of cash payments should be designed along the same general lines as for unemployment insurance and, so far as may be practical, should be linked with the administration of unemployment benefits.

6. The administration of health and medical services should be designed on a state-wide basis, under a federal law of a permissive character. The administrative provisions should be adapted to agricultural and sparsely settled areas as well as to industrial sections, through the use of alternative procedures in raising the funds and furnishing the services.

7. The costs of cash payments to serve in partial replacement of wage loss are estimated as from 1 to 1.5 per cent of pay roll.

8. The costs of health and medical services, under health insurance, for the employed population with family earnings up to \$3,000 a year, is not primarily a problem of finding new

funds but of budgeting present expenditures, so that each family or worker carries an average risk rather than an uncertain risk. The population to be covered is accustomed to expend, on the average, about 4.5 per cent of its income for medical care.

9. Existing health and medical services provided by public funds for certain diseases or for entire populations should be correlated with the services required under the contributory plan of health insurance.

10. Health and medical services for persons without income, now mainly provided by public funds, could be absorbed into a contributory insurance system through the payment by relief or other public agencies of adjusted contributions for these classes.

11. The rôle of the federal government is conceived to be principally (a) to establish minimum standards for health insurance practice and (b) to provide subsidies, grants or other financial aids or incentives to states which undertake the development of health insurance systems which meet the federal standards.

Promptly on the submission of these messages and reports to the Congress of the United States, Senator Wagner of New York submitted in the Senate S. 1130, which is known as the Wagner Bill for Social Insurance. It covers specifically old age assistance, aid to dependent children, earnings and employment excise taxes. It sets up a social insurance board composed of three persons appointed by the President, to be a part of the Department of Labor. This board is authorized, with the approval of the Secretary of Labor, to appoint and fix compensation of all officers, attorneys and experts needed, without regard to civil service laws. Under this board will come the control of old age insurance, unemployment compensation, accident compensation, health insurance and related subjects. Annuity certificates and taxes on payrolls of 3 per cent are provided as means of raising funds.

Under the heading maternity and child welfare, this bill appropriates \$4,000,000 annually to enable the federal government to cooperate with the state agencies of health in extending and strengthening services for the health of mothers and children, especially in rural areas and in areas suffering from severe economic distress. This is to be administered by the Department of Labor. Each state is to get \$20,000 annually, and \$1,000,000 is to be apportioned among states in proportion to the respective live birth rates. The Secretary of Labor may apportion \$800,000 among states that are unable to match the federal appropriation. Furthermore, the Secretary of Labor may use the remainder to make special demonstrations and conduct research in maternal care. To secure the federal funds, the states must submit their plans to the Children's Bureau and obtain approval.

For the care of crippled children the Wagner bill provides \$3,000,000 annually, to be handled in much the same way as the funds for maternal and child welfare are to be handled, also subject to approval of the Children's Bureau.

For child welfare services \$1,500,000 annually is allotted, also distributed and controlled along the same lines.

Finally, the Wagner bill appropriates \$10,000,000 annually to be administered by the Bureau of the Public Health Service. The bureau is to allot \$8,000,000 to the states in amounts determined on the basis of the need of each state for such assistance, to develop state health services, including the training of personnel for state and local health work and for the purpose of assisting counties or other political subdivisions of the states in maintaining public health programs. The sum of \$2,000,000 is to be made available annually to the Public Health Service for the further investigations of diseases and problems of sanitation and related matters.

This, then, is the outline of plans by the federal government for immediate action in relationship to

economic security, and also a general outline of what may be anticipated in the way of a system of sickness insurance to be proposed about March 1. It is understood that the Wagner bill is to be a first order of business with the Congress now in session. The *Journal* has repeatedly called attention to the political situation, which indicates that any measure proposed by the administration is likely to have legislative approval and to pass speedily into the law of the land.

Physicians will recognize in the plans for maternal and child welfare, and for the care of the crippled, a repetition of the methods operative under the Shepard-Towner law, except that the money now to be made available is somewhat in excess of what was then used for these purposes.

The work of the United States Public Health Service is worthy of generous support. The amount of money now spent for preventive medicine is insignificant compared to the total budget of the nation for medical purposes.

Readers of the *Journal* need not be reminded of the various criticisms that have been brought against the use of federal subsidies to the individual states to induce legislation by the states. Essentially this provides federal control, because all plans for expenditure must be approved by a federal bureau before the appropriation can be secured. Moreover, the states that fail to cooperate merely deprive themselves in order to make more money available to other states. Finally, most of this important medical work is placed in the Department of Labor, under what is essentially non-medical control, instead of being correlated under the United States Public Health Service. Again and again, plans have been suggested for gathering together the medical services of the federal government under some single leadership of a medical character; yet these services remain distributed through the Department of the Interior, the Department of Labor, the Department of Agriculture, the Treasury and others. Now it is proposed that the Social Insurance Board shall undertake still other responsibilities, some of which inherently involve medical considerations. Fortunately, all concerned realize the complex character of the problems to be approached and all seem willing to undertake these projects in an experimental manner, subject to such revisions and modifications as may be necessary.

The point of view of the American Medical Association is apparently clear to the Committee on Economic Security. It is the only nongovernmental organization specifically mentioned by name in the Report of the Committee on Economic Security. Moreover, the eleven broad principles outlined by the committee as fundamental to the design of a sound plan of health insurance reflect distinctly the ten principles to control experiments in medical practice adopted by the House of Delegates of the American Medical Association at its meeting in Cleveland last June. Here are recognition of the importance of sustaining the quality of medical service, professional responsibility in administering medical care, free choice of physician and institution, continuance of private practice, exclusion of commercial intermediary agents, state rather than federal control, and other minor factors.

In submitting its eleven principles, may we again point out, the Committee on Economic Security says:

From the very outset, however, our committee and its staff have recognized that the successful operation of any such plan will depend in large measure upon the provision of sound relations between the insured population and the professional practitioners or institutions furnishing medical services under the insurance plan.

The committee states that it has already submitted this tentative plan to the various professional advisory groups organized for this purpose and it is announced that these advisers will not report until March 1. Time is therefore now available in which the medical profession as a whole, as represented by the American Medical Association, and in smaller units as represented by state and county medical societies, may make its views clear both to the appropriate advisory committees and to the Committee on Economic Security. The American Medical Association has opportunity to present its attitude to these bodies and, indeed, to Congress itself, when eventually legislation is promulgated to make the views of the committee a part of the national administration of our lives.

The *Journal* has emphasized repeatedly that no system of medical practice can succeed unless the medical profession gives it whole-hearted support and cooperation. Physicians everywhere must make themselves fully conversant with the trend of the legislation that is proposed so that they may, in turn, enlighten the senators and representatives who speak for them in Congress. We seem to have impressed considerably with our point of view those who are undertaking the development of these new experiments in the conduct of medical care. We must not lose heart. Convinced of the righteousness of our attitude, knowing that the medical profession alone understands the fundamental human factors at the basis of the best medical care, it is our duty to do our utmost to make our point of view prevail. This we must do not only for economic security but also to secure to the American people a continuance of the high quality of medical care that has been theirs up to now.

NEWS NOTES

Dr. Fred W. Bailey, St. Louis, has been appointed by Governor Park a member of the Missouri State Board of Health to succeed Dr. Emmett P. North, St. Louis.

On his plea of no contest to two charges of violation of the Harrison narcotic law, Dr. Jay H. Lamb, St. Louis, was fined \$500 on January 8 by Federal Judge Davis. The alleged violations took place in 1931.

A testimonial dinner was tendered Dr. John C. Morfit, St. Louis, past president of the St. Louis Medical Society, on January 24 at the Missouri Athletic Association, St. Louis. A testimonial of esteem was presented to Dr. Morfit.

The Kansas City Pathological Society was organized at a meeting of Kansas City pathologists December 12, 1934. All physicians interested in pathology will be admitted. Dr. William K. Trimble was elected president and Dr. A. H. Wells, secretary. Drs. R. Koritschoner, F. C. Narr and W. W. Summerville were appointed a committee to draw up the constitution and by-laws.

Dr. James L. Mudd, St. Louis, has been appointed tuberculosis controller of St. Louis by Dr. Joseph Bredeck, Health Commissioner. Dr. Mudd will succeed Dr. H. I. Spector, St. Louis, who was appointed assistant health commissioner.

The St. Louis County Court, Clayton, has ordered that all clinics operated by the St. Louis County Health Commissioner be consolidated with those of the St. Louis County Hospital. The action was decided upon to eliminate duplication of service and reduce expenditure of funds.

A tuberculosis survey is being made of Jasper County including tuberculin testing and roentgen rays of contacts. The work is being done by four relief nurses under the direction of Dr. Jesse E. Douglass, Webb City, of the Jasper County Tuberculosis Hospital.

Dr. Edwin L. Sheahan, Clayton, has been appointed superintendent of the St. Louis County Hospital, Clayton, to succeed Dr. William G. Patton who has held the position for two years. Dr. Sheahan is on the staffs of DePaul, Isolation and St. Louis County hospitals and the City Sanitarium and the City Infirmary, St. Louis.

Dr. J. Curtis Lyter, St. Louis, was the guest of the Sangamon County (Illinois) Medical Society at Springfield, Illinois, January 3. Following a dinner Dr. Lyter presented an address on "The Nature, Diagnosis and Treatment of Angina Pectoris of Effort." On January 10 Dr. Lyter was the guest of the Tri-County (Illinois) Medical Society at Anna, Illinois, and spoke on "Angina Pectoris, Its Recognition and Complications."

The United States Civil Service Commission has announced an open competitive examination for junior medical officers in St. Elizabeth's Hospital, Washington, D. C. Applications must be on file with the manager of the Fourth U. S. Civil Service District, Washington, D. C., not later than February 18, 1935. Two types of internship are offered, an accredited internship of two years consisting of a rotating service and a postgraduate internship of one year in psychiatry. Full information may be obtained at the post office or customhouse in any city or from the United States Civil Service Commission, Washington, D. C.

Openings for young practitioners are occurring in connection with CCC camps in Missouri. The policy of furnishing medical care in these camps is the maintaining of a small infirmary under the direction of an officer of the Medical Corps Reserve. Practitioners who have not obtained their commission may make application, if eligible for commission, and enter the work pending the action upon their application for a commission. No applicant will be accepted who must break a contract as an intern, house physician or in any civilian institutional capacity. Further information may be obtained by addressing Major John R. Hall, Medical Inspector, Seventh Corps Area, Omaha, Nebraska.

The sixth annual meeting of the Medical Association of the Missouri Pacific Railroad convened in New Orleans, January 25 and 26. Missouri members who appeared on the program and their subjects were Dr. William E. Leighton, St. Louis, who spoke on "Carcinoma of the Breast"; Dr. Emmett P. North, St. Louis, "Technic for Senile Cataract and Ptosis—Step by Step," a motion picture; Dr. Harvey D. Lamb, St. Louis, "The Prophylaxis of Sympathetic Ophthalmia"; Dr. A. B. Potter, St. Louis, "Caldwell Luc Technic for Removal of Root Fragments in the Maxillary Sinus," and Dr. Lee B. Harrison, St. Louis, "The Importance of Dental Foci Infection in General Disease." Dr. O. B. Zeinert, St. Louis, chief surgeon, delivered an address at a banquet on the first evening of the meeting.

Dr. Lewis Stephen Pilcher, Upper Montclair, New Jersey, scholar and editor for half a century of the oldest surgical journal in the United States, the *Annals of Surgery*, died December 24, 1934, aged 89. Country school teacher, country practitioner, naval surgeon, student of tropical disease, anatomist, professor of surgery, editor, bibliophile and patriot indicate a few of his many interests and activities over a long and intensely useful life. In 1884 Dr. Pilcher became editor of the *Annals of Surgery* which position he occupied until his death. This publication was acquired in 1897 by the J. B. Lippincott Company but direction of the editorial policy and censorship of advertising were never relinquished by Dr. Pilcher. If to the fifty years of the *Annals of Surgery* is added the seven years of the *Annals of Anatomy and Surgery*, its predecessor which Dr. Pilcher inspired and dominated, this period

of medical editorship establishes him as the dean of medical editors in the United States, if not in the world.

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Grisard Laboratories

Chocolate Coated Tablets Scillonin, 0.5 mg.

Lederle Laboratories, Inc.

Diphtheria Toxin for Schick Test in Peptone Solution, fifty test package

Staphylococcus Toxoid

Eli Lilly & Co.

Ampoules Sodium Amytal, 0.065 Gm. (1 grain)

Tablets Amytal, 1/8 grain

National Drug Company

Diluted Diphtheria Toxoid for Sensitivity Test, 5 and 50 test packages

Winthrop Chemical Co., Inc.

Tablets Skiodan, 1 Gm.

The following products have been accepted for inclusion in the List of Articles and Brands Accepted by the Council But Not Described in N. N. R. (New and Nonofficial Remedies, 1934, p. 443):

Lederle Laboratories, Inc.

Quinidine Sulphate (Lederle)

Capsules Quinidine Sulphate (Lederle) 3 grains (0.2 Gm.)

Capsules Quinidine Sulphate (Lederle) 5 grains (0.325 Gm.)

OBITUARY

HENRY J. HARNISCH, M.D.

Born on January 8, 1858, as the son of modest and retiring pioneer Lutheran parents, Henry J. Harnisch inherited a calm but earnest viewpoint of life, as well as a deeply rooted religious conviction.

After a fair preliminary education he became an apothecary's apprentice and, in due time, received a diploma from the St. Louis College of Pharmacy. Then, like a goodly number of young druggists in the latter half of the nineteenth century, he studied at the St. Louis Medical College where he was graduated in 1881.

His diligence and close application to study was well known to his friends and acquaintances and before long they displayed their confidence in his ability as a physician by employing his professional services. He was appointed to the medical staff of the Lutheran Hospital only two years after the title of Doctor of Medicine had been conferred upon him. During many of the fifty-one years of his connection with this well-con-

ducted institution, Dr. Harnisch served as chief of its medical staff, the members of which always considered it an honor to call him one of their associates. Even after he had retired from active practice, he frequented the arena of his professional career whenever the opportunity offered itself.

Although Dr. Harnisch was content to be called a general practitioner and never aspired to the realm of specialism, he was an accomplished internist who had kept abreast with contemporary progress in diagnostic methods.

He applied for membership in the St. Louis Medical Society as soon as he was eligible. Following his admittance in 1882, he was an active member continually for forty years. Since 1922 his name has been an outstanding ornament on the roster of the Society's honor members.

Dr. Harnisch loved plants and flowers. The beautiful terraces which flanked his residence at Eighteenth and Lami streets, with a well filled conservatory as the principal central object, in their time, often attracted the attention of many passers-by. During recent years he maintained another splendidly arranged garden at his home in Flagstaff, Arizona.

He was never robust, of a slender stature, but always alertly energetic and politely cheerful. His tenderness of temperament and kindness of affection were no doubt the products of his finely drawn physical texture. Throughout the years of his failing health he suffered considerable pain and discomfort but with no complaining, and died at Flagstaff, on October 23, 1934.

The funeral services were held on October 26 at Emmaus Lutheran Church in St. Louis, of which congregation he was a charter member and the first president. An unusually large number of prominent medical men attended these last sad rites.

The bereaved widow and family may find a degree of consolation in the fact that he stood high in the esteem of his colleagues, and that these doctors will always cherish the memory of Dr. Harnisch with profound reverence and respect.—R. E. S. in the *Weekly Bulletin* of the St. Louis Medical Society.

STEPHEN A. STADLER, M.D.

Dr. Stephen A. Stadler, Kansas City, was born February 28, 1890, at Rosedale, Kansas. He attended the public school at Rosedale and received his high school education at De LaSalle Academy in Kansas City, Missouri, graduating in 1910. From 1910 to 1912 he attended the University of Kansas after which he went to St. Louis to take the medical course offered at St. Louis University. He received his degree of Doctor of Medicine from that institution in 1917.

During 1917-1918 he served an internship at St. Joseph's Hospital and from there enlisted in the Medical Corps of the U. S. Army, being commissioned a lieutenant, and was attached to the 68th Infantry of the Ninth Division.

In 1919 he returned to Kansas City and entered the practice of pediatrics, having offices in the Lathrop Building until the last three years, when due to impairment in health, he established his office in his residence at 6133 Brookside Boulevard. He was a member of the Kansas City Pediatric Society and was serving as secretary of that society at the time of his death.

He died suddenly and unexpectedly on Thursday morning, November 1, of a hemorrhage in the esophagus. Funeral services were held at St. Peter's Church and he was laid to rest beside his mother at St. Joseph's Cemetery, Shawnee, Kansas, on November 3.

To his widow, the former Violet Callaghan, and his daughter, Margaret Jean Stadler, now twelve years old,

we extend our sympathy. His untimely death is mourned by the Jackson County Medical Society and his many patients and friends.—E. H. Sch. in the Jackson County Medical Journal.

MINARY JAMES ARMSTRONG, M.D.

Dr. M. J. Armstrong, Springfield, was born in Nashville, Tennessee, in 1883. He was a graduate of the Kansas City Medical College, 1907. He died suddenly in his office in the Woodruff Building, of angina, April 13, 1934, at the age of 51 years.

He married Miss Arrie McGuire in 1904. He located at Brighton, Missouri, after his graduation where he practiced general medicine for about a year, then removed to Buffalo, Dallas County; after a few years he moved to Springfield, and in 1912 he was appointed on the staff of the State Tuberculosis Sanatorium at Mt. Vernon, serving there until 1916. He was then appointed superintendent of the Jasper County Tuberculosis Sanatorium at Webb City, which position he held for two years.

Going to Springfield in 1918, he devoted his time to heart and chest diseases. He was a member of the Greene County and State Medical Associations.

He is survived by one daughter, Mrs. Ren Smith, of the home address, his wife having preceded him in death something over a year previous.

Resolved, That a copy of these resolutions be incorporated in the minutes of our Society, copy sent our JOURNAL and copy sent to the daughter.

W. P. PATTERSON, M.D.,
W. R. BEATIE, M.D.,
Committee.

WILLIAM LAFAYETTE GOSSAGE, M.D.

Dr. W. L. Gossage was born near Golconda, Illinois, March 28, 1867. He died July 9, 1934, at his home in Kennett, Missouri, aged 67 years.

He was married to Vesta Isabelle Duncan, Eddyville, Illinois, April 28, 1889. Six daughters were born to this union.

He entered the St. Louis College of Physicians and Surgeons in the year 1900 at an age when most men are well along the road of their chosen careers and against odds which few would have had the courage to face. He was graduated from this college in 1905 having stayed out one year for financial reasons.

He moved his family from Illinois to Fairdealing, Ripley County, Missouri, in 1902. It was there he began the practice of his profession. In 1910 he went to Kennett where he made his home. He entered into the life of the community in more than a professional way. He was a member of the First Baptist Church where he took an active part, having been a deacon for many years. He was also a member of the Masonic order having received the thirty second degree in the Scottish Rite.

Dr. Gossage was a member of the state and county medical societies and was president of the Dunklin County Society in 1930. He was strictly ethical in all his practice and numbered his friends in the profession by his acquaintances. To him his work was not a business but a calling and he faithfully answered every summons so long as his health permitted, but in 1929 his health failed and his refusal to give up his practice and his grief at being no longer able to answer the calls of patients who had long since become friends no doubt hastened his end. He together with his wife spent the last two years in Roswell, New Mexico, making a valiant fight for renewed health but the odds

were too great so he returned to Kennett a little less than three months prior to his death.

Funeral services were held at the First Baptist Church of Kennett, with his friend and former pastor, Rev. J. E. Brown, Festus, in charge. Among those who acted as pallbearers were the following members of the Society: Dr. Paul Baldwin, Dr. U. A. V. Presnell, Dr. T. J. Rigdon, Dr. Rollen Presnell, and Dr. J. C. Mills, dentists, all of Kennett, and Dr. E. G. Cope, Hornersville.

The community has lost a useful citizen, the medical profession a devoted worker and his family a loving husband and father.

T. J. RIGDON, M.D.,
PAUL BALDWIN, M.D.,
E. G. COPE, M.D.,
Committee.

C. WILBUR SMITH, M.D.

Dr. C. Wilbur Smith, Springfield, was born in Atkinson, Illinois, January 23, 1873, and lived there until 1884 when his family moved to South Dakota. The family moved to Springfield in 1889. He graduated from high school there and later graduated from Drury College in the class of 1898.

He finished his medical course in Beaumont Hospital Medical College in 1901. After graduation he went to Keota, Missouri, to take over the medical and surgical work of the mines owned by the Kansas & Texas Coal Company.

He went to Springfield, January 1, 1909, and soon acquired a large and lucrative general practice, later limiting his work to surgery. He early became associated with the Springfield Baptist Hospital and was active in its development.

Resolved, That in the death of Dr. Smith our Society and community have lost a valuable citizen and the medical profession a valuable member. Be it further

Resolved, That this report be spread upon the minutes of this Society and a copy be mailed to his widow, and to the State JOURNAL.

W. P. PATTERSON, M.D.,
W. R. BEATIE, M.D.,
Committee.

FRANK HINCHEY, M.D.

Dr. Frank Hinchey was born in St. Louis, February 2, 1867, and was educated there, graduating from the Missouri Medical College in 1894. He served as intern in the City Hospital and in the Female Hospital after which he located in Omaha, Nebraska. He at once became associated with the Creighton Medical College as demonstrator of anatomy and professor of materia medica.

Illness of his sister-in-law called him to California after two years spent in Omaha, thence to Carlsbad, New Mexico. He spent a year with her in that climate. She was sufficiently restored in health to permit his return to St. Louis where he established a practice, majoring in gynecology. He was associated with the gynecological clinic of the Missouri Medical College for many years and with the Maternity Hospital for a long period in the same capacity. Later he was associated with the gynecological department of the Skin and Cancer Hospital for several years. He was president of the old City Hospital Medical Society and he was at the time of his death a member of the staff of the Missouri Baptist Hospital.

He was married to Miss Myrtle Shreve in Lincoln, Nebraska, in 1899. Two sons, John Bryan and

Norman Shreve, with their families and mother are living in St. Louis.

Dr. Hinchey was a member of the executive board and vice president of the Ethical Culture Society. For many years he was a member of the University City Board of Health. Dr. Hinchey was a valued and active member of the St. Louis Medical Society until failing health curtailed such activities. He was an omnivorous reader having a mind unusually well stored with material gained from a wide expanse of literature. His home life was happy. His chief delight in his latter years was in his grandchildren whose devotion challenged the admiration of those whose good fortune brought them even to an occasional glimpse of this radiantly cheerful home.

Dr. Hinchey was fond of traveling. He and Mrs. Hinchey spent much time in Europe where he pursued his scientific studies in the clinics. About five years ago they made a trip around the world.

This good man was greatly loved by his patients and friends alike. A fine man, a worthy member of this organization has fallen.

H. T.—in the Weekly *Bulletin* of the
St. Louis Medical Society.

CALVIN A. RHEA, M.D.

Dr. Calvin A. Rhea, Thayer, a graduate of the Missouri Medical College, St. Louis, 1882, died at Springfield, September 28, 1934, aged 73 years.

Dr. Rhea was born at Liberty and received his early education at Chillicothe. After completing his medical work he practiced in Livingston County two years, in Carroll County eleven years and at Alton for about twenty years. In 1915 he located at Thayer and remained there until his death.

He was an active member of organized medicine. He was vice president of the Howell-Oregon-Texas County Medical Society in 1920, 1922, 1928 and 1929 and was president of the Society in 1923 and 1924. He was surgeon for the United States Pension Board for Thayer and Alton, was consulting surgeon for the Frisco Railroad at Thayer, was for a number of years registrar of vital statistics for Thayer and Oak Grove townships and was city physician at Thayer. He was past chancellor commander of Alamo Lodge No. 142, Knights of Pythias.

Dr. Rhea will be greatly missed in his community for he had gained a host of friends in his long years of faithful practice.

DANIEL E. HAMMONTREE, M.D.

Dr. Daniel Edward Hammontree died at his home in Bolivar, August 12, 1934, after an illness of five months with nephritis and coronary sclerosis. He was 65 years of age.

He was born in Greene County, Missouri, October 26, 1868, a son of Mr. and Mrs. Robert Hammontree. He taught school as a young man in Greene and Polk counties.

He was married August 27, 1893, to Miss Ella Slagle of the Slagle community in Polk County. After his marriage he decided to take up the profession of medicine and he took his family to Kansas City where he entered medical college. So well did he master his courses that when he was graduated in 1903 with the degree of M.D. from the Medico-Chirurgical College he was the honor student of the class. This college later became the School of Medicine of the University of Kansas.

Returning to Polk County, Dr. Hammontree and his family located at Halfway where he practiced more

than twelve years. In 1916 he moved to Bolivar and was in active practice there eighteen years, being at his office each day until his health failed last April.

During his thirty years in the profession he built up one of the largest practices in the Ozarks, and his services were much in demand over a large territory surrounding Bolivar. He was an ideal type of family physician, eager to restore the health of those who sought his services and showing special solicitude for the little children. With these traits he had the all-round knowledge of a general practitioner together with the special detailed knowledge gained through careful study of modern trends in medicine and surgery.

He was a leader in the activities of the Dallas-Hickory-Polk County Medical Society and was serving as its vice president at the time of his death.

He was a member of both the Odd Fellows and the Masonic lodges, and had been a member of the Baptist Church since early manhood.

Hundreds of his friends and former patients gathered to pay him their last respects, forming an unusually large crowd for a week-day funeral. The services were held Wednesday, August 15, at the Baptist Church in Bolivar, preached by the Rev. Luther E. McReynolds, Springfield, assisted by the Rev. J. R. Blythe, Bolivar. Burial was in Greenwood cemetery at Bolivar.

Dr. Hammontree is survived by his wife, Mrs. Ella Hammontree; one daughter, Mrs. Ralph Gravely; one son, Dr. Ben R. Hammontree, dentist; and two grandchildren, all of Bolivar.

THORNTON E. MOORE, M.D.

Dr. Thornton E. Moore, Trenton, a graduate of the University of Missouri School of Medicine, 1903, died of angina pectoris, December 20, 1934, at his home, aged 56 years. He had been in ill health for the last eight years and had been critically ill for the last two months.

Dr. Moore was born in Linneus and moved with his family to Edinburg when he was 16 and attended the Grand River College there. After completing his medical studies at Columbia he took postgraduate work at Cornell University then served as house surgeon at the Parker Memorial Hospital in Columbia. He began practice at Edinburg in 1904. In 1910 he moved to Trenton and remained in practice there.

He was active in professional interests. He was president of the Grundy County Medical Society in 1930, censor in 1925 and alternate delegate in 1933. He served on the boards of several civic organizations.

He was widely known in professional, business and civic circles. His place will not easily be filled.

He is survived by his widow, Mrs. Pearle Moore, a daughter and two brothers.

In dealing with the problem of industrial plumbism, Roy R. Jones, Washington, D. C. (*Journal A. M. A.*, Jan. 19, 1935), believes that emphasis should be placed on those signs and symptoms commonly exhibited early in the course of absorption or intoxication. All observations should be considered in their relation to the entire clinical picture in order to arrive at a diagnosis, especially in the preintoxicative stage. All changes, listed as presumptive evidence should be thoroughly investigated. From a practical point of view it is believed that, by careful watching for an early reticulocyte response, the physician will be able to detect evidence of lead absorption prior to the development of definite plumbism.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1935

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Ste. Genevieve County Medical Society,
December 12, 1934.

Chariton County Medical Society, Janu-
ary 3, 1935.

Perry County Medical Society, January 4,
1935.

Moniteau County Medical Society, Janu-
ary 10, 1935.

BOONE COUNTY MEDICAL SOCIETY

The annual dinner meeting of the Boone County Medical Society was held in the Colonial Room of the Tiger Hotel, December 4, 1934, with twenty-one members present.

After a delicious dinner the meeting was called to order by the president, Dr. A. R. McComas, Surgeon.

Dr. H. McClure Young, Columbia, was elected to membership.

A committee was appointed to draft resolutions of sympathy and condolence for the family of Dr. C. L. Lavender, Columbia, who died recently, and to send a floral wreath to the funeral. The committee was composed of Dr. C. M. Sneed, Dr. W. O. Fischer and Dr. W. E. Belden, Columbia.

The following officers for 1935 were elected by acclamation following nomination from the floor: President, Dr. W. P. Dysart, Columbia; vice president, Dr. W. O. Fischer, Columbia; secretary, Dr. Maurice E. Cooper, Columbia; member of board of censors for 1935-37, Dr. C. M. Sneed, Columbia; delegate, Dr. F. G. Nifong, Columbia; alternate, Dr. R. S. Battersby, Columbia, and member auxiliary Committee on Public Policy, Dr. D. A. Robnett, Columbia.

After the election of officers Dr. M. D. Overholser, Columbia, gave an extremely well received performance in the art of slight of hand and magic. Dr. Overholser has made this his hobby for many years and has developed the technic of his art to a fine state of perfection. The familiar adage that the hand is quicker than the eye was well illustrated even to the most skeptical.

MAURICE E. COOPER, M.D., Secretary.

CAPE GIRARDEAU COUNTY MEDICAL SOCIETY

The Cape Girardeau County Medical Society, deviating from its usual custom, held its regular meeting at Simpson's Colonial Tavern on Route No. 61 at 8 p. m., December 10, 1934. The president, Dr. H. V. Ashley, Cape Girardeau, presided.

Members present were: Drs. D. I. L. Seabaugh, Rusby Seabaugh and D. G. Seibert, Jackson; Drs.

H. V. Ashley, N. F. Chostner, J. H. Cochran, A. L. Fuerth, D. H. Hope, Paul B. Nussbaum, R. A. Ritter, John St. Avit, O. L. Seabaugh, M. H. Shelby, G. J. Tygett and C. A. W. Zimmermann, Cape Girardeau.

The applications of Drs. G. J. Tygett and Rusby Seabaugh having been favorably acted upon by the board of censors were balloted upon and both sons of Aesculapius were admitted into the Society.

The report of Dr. B. W. Hays, Jackson, treasurer, was read. Dr. Ashley appointed Drs. D. I. L. Seabaugh and D. G. Seibert, Jackson, to review the report and audit the books.

Dr. Ashley brought a query from the school nurse on how to proceed regarding the quarantining of contagious diseases. Without formality it was decided to refer her to the health department.

Election of officers resulted as follows: President, Dr. D. I. L. Seabaugh, Jackson; vice president, Dr. P. W. Nussbaum, Cape Girardeau; secretary, Dr. C. A. W. Zimmermann, Cape Girardeau; treasurer, Dr. B. W. Hays, Jackson; censor for three years, Dr. M. H. Shelby, Cape Girardeau; delegate, Dr. B. W. Hays, Jackson, and alternate, Dr. D. H. Hope, Cape Girardeau.

After this business was cared for adjournment was taken to tables where delicious sandwiches and appropriate liquids were met and conquered. Pinochle and pitch were indulged in for several hours after which the meeting adjourned.

C. A. W. ZIMMERMANN, M.D., Secretary.

CASS COUNTY MEDICAL SOCIETY

The Cass County Medical Society held its regular quarterly meeting December 13, 1934, at Harrisonville, Dr. T. W. Adair, Archie, president, in the chair.

The following officers were elected: President, Dr. William Beckman, Strasburg; vice president, Dr. B. B. Tout, Archie; secretary-treasurer, Dr. J. S. Triplett, Harrisonville; delegate, Dr. T. W. Adair, Archie; alternate, Dr. B. O. Hartwell, Drexel, and censor, Dr. M. P. Overholser, Harrisonville.

The Society elected Dr. B. B. Tout, Archie, to the honor roll of the State Association.

Dr. B. O. Hartwell, Drexel, read a paper on "Sporotrichosis" and presented a patient and photographs showing the lesions of this disease.

Dr. William Beckman, Strasburg, read a paper on "Erysipelas."

Dr. B. B. Tout, Archie, reported a case of "Perforation of the Duodenum."

These scientific papers and reports of cases were well prepared and were discussed by all present.

Dr. C. T. Ryland, Lexington, President of the State Medical Association discussed various phases of "Medical Economics," which was timely and highly appreciated. The doctor was extended a vote of thanks for his presence and for his splendid address.

Dr. T. W. Adair, Archie, in his presidential address discussed "Some Problems for Consideration by the Cass County Medical Society." Among other important matters, the doctor counseled an ethical and fraternal relationship among the regular medical practitioners and a closer cooperation between the Society and its Auxiliary.

J. S. TRIPLETT, M.D., Secretary.

CLAY COUNTY MEDICAL SOCIETY

The Clay County Medical Society met December 30, 1934, at the Colonial Hotel, Liberty. A dinner at which the Woman's Auxiliary were guests preceded the regular meeting.

Dr. Spence Redman, Platte City, was a guest.

A report of the secretary-treasurer, Dr. J. J. Gaines, Excelsior Springs, was read and accepted.

Dr. J. J. Gaines, who for years has been serving as secretary-treasurer of the Society, tendered his resignation which was accepted only after a motion was made to elect him secretary emeritus. This motion was passed unanimously.

The following officers were elected for 1935: President, Dr. Harry Staley, North Kansas City; vice president, Dr. J. A. Howell, Excelsior Springs; secretary-treasurer, Dr. Eugene B. Robichaux, Excelsior Springs; censor, Dr. F. H. Matthews, Liberty; delegate, Dr. Eugene B. Robichaux, Excelsior Springs, and alternate, Dr. F. H. Matthews, Liberty.

The Society endorsed a plan to hold a cancer meeting in Excelsior Springs, January 17.

Dr. Joseph Dauksys, Excelsior Springs, chairman of the Local Committee on Arrangements for the 1935 Annual Session of the State Association announced the appointment of the members of the various sub-committees. He announced the members of the Local Committee on Arrangements as follow: Dr. J. E. Baird, Dr. J. E. Musgrave, Dr. J. J. Gaines and Dr. Eugene B. Robichaux, Excelsior Springs. It was decided to hold a dinner at the Annual Session in honor of Dr. Gaines.

The scientific program was presented by Dr. Joseph Dauksys. He gave a brief resumé of Paget's disease followed by a presentation of roentgenographic studies of a case rather far advanced and complicated by the presence of two osteogenic sarcomas.

EUGENE B. ROBICHAUX, M.D., Secretary.

GREENE COUNTY MEDICAL SOCIETY

The Greene County Medical Society met December 28, 1934, in the Public Library, Springfield, Dr. G. D. Callaway, presiding. The following members were present: Drs. W. R. Beatie, G. D. Callaway, J. W. Coon, W. C. Cheek, T. V. B. Crane, R. F. Elkins, M. T. Edmondson, E. L. Evans, R. E. Ferrell, C. E. Feller, Robert Glynn, H. Lee Hoover, William Kelly, J. W. Love, J. F. Leslie, W. P. Patterson, George Powell, J. E. Rayl, Wallis Smith, C. Souter Smith, W. S. Sewell, J. W. Williams and D. L. Yancey, Springfield.

Dr. W. P. Patterson, Springfield, reporting for the necrology committee, gave a summary of the life histories of Dr. Wilbur Smith and Dr. M. J. Armstrong, Springfield. A resolution was introduced that these reports be spread upon the minutes of the meeting and copies be sent to the families of the deceased members and to the State JOURNAL. The resolution was adopted by unanimous vote.

A letter was read from the Springfield Retail Druggists Association relative to their efforts in presenting to the city council an ordinance governing the sale of prophylactic devices and asking for the support of the Society. A motion was made and passed instructing the secretary to write a letter supporting the ordinance as requested.

The president asked for an expression of the Society relative to members who were in arrears with their dues. After considerable discussion a motion by Dr. W. P. Patterson and seconded by Dr. J. W. Coon that a committee be appointed to confer with the delinquent members to ascertain their desires in regard to payment of dues was passed.

The annual election of officers resulted as follows: President, Dr. Wallis Smith; vice president, Dr. R. F. Williams; secretary, Dr. John W. Williams, Jr.; treasurer, Dr. W. E. Handley; censor, Dr. W. R.

Beatie; delegate, Dr. Paul Cole, and alternate, Dr. Wallis Smith.

R. F. WILLIAMS, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society was called to order at 8 p. m., December 4, with twenty-six members present.

A letter from Dr. Earl Padgett, Kansas City, was read stating that the Committee on Cancer would like to put on a cancer program some Thursday the latter part of December or first of January.

The application of Dr. E. J. McIntire was presented.

The following officers were elected: President, Dr. W. S. Loveland, Joplin; vice president, Dr. J. L. Sims, Joplin; secretary, Dr. J. W. Hardy, Joplin; treasurer, Dr. H. D. McGaughey, Joplin; censors, Dr. L. B. Clinton, Carthage, and Dr. W. L. Post, Joplin; delegates, Dr. L. C. Chenoweth and Dr. R. E. Myers, Joplin, and alternates, Dr. E. D. James and Dr. B. E. DeTar, Joplin.

It was decided that the annual banquet would be held on January 8.

Meeting of December 11

The Society was called to order by Dr. W. S. Loveland, Joplin, vice president, with nine members present.

The application of Dr. E. J. McIntire, Carthage, for membership was accepted. Applications of Dr. W. G. Hogan, Neck, and Dr. V. E. Kenney, Joplin, were presented and referred to the board of censors.

Dr. W. S. Loveland and Dr. O. T. Blanke, Joplin, discussed the frequency of catarrhal jaundice during the last sixty days wondering what the etiology of the apparent epidemic might be.

Mr. Hollman, representative of the Petrolagar Laboratories, Chicago, showed a film made by Dr. H. C. Jones showing his method of sub-total hysterectomy.

The paper of the evening was presented by Dr. Frank W. Windle on "The Etiology, Diagnosis and Treatment of Pyorrhea."

J. W. HARDY, M.D., Secretary.

JEFFERSON COUNTY MEDICAL SOCIETY

The Jefferson County Medical Society met at De Soto, November 9, with Dr. N. W. Jarvis, Festus, presiding.

After a general discussion on relief work it was moved by the secretary and seconded by Dr. J. J. Commerford, Crystal City, that the Society go on record as approving circular No. 7 of the Relief Department providing 50 per cent of the usual fee. Without action but by mutual agreement it was understood that no relief orders would be accepted by members if written for a definite amount (except after a case is closed), and that members would not forecast the cost of treating a case further than saying 50 per cent of the usual fee.

The members noted the absence of Dr. W. H. Farrar, De Soto, who was reported as being critically ill and totally blind and now living with his daughter in Hickory, North Carolina. Dr. J. F. Donnell, Crystal City, moved, seconded by Dr. Harry Yoskit, Festus, that Dr. Farrar be elected to honorary membership. Drs. W. E. Gibson, David Ford and C. E. Fallet, De Soto, were appointed by the president to draw up a resolution and send a copy to Dr. Farrar. The following resolution was written by the committee:

WHEREAS, At a regular meeting of the Jefferson County Medical Society at De Soto, November 9, the absence of Dr. W. H. Farrar was noted, and

WHEREAS, The Jefferson County Medical Society records its profound respect for Dr. Farrar, and

WHEREAS, His regular attendance, faithful support and exemplary conduct is worthy of our emulation, be it

Resolved, That in consideration of his long and loyal support of organized medicine he be elected to honorary membership in the Jefferson County Medical Society. Be it further

Resolved, That a copy of these resolutions be sent to Dr. Farrar together with the united and sincere best wishes of the Society, and that a copy be sent to Dr. E. J. Goodwin for the records of the State Medical Association and that a copy be spread upon the minutes of the Jefferson County Medical Society.

The application of Dr. A. P. Smith, Festus, was received and he was regularly elected.

The following officers were elected for the ensuing year: President, Dr. John F. Rutledge, Crystal City; vice president, Dr. N. W. Jarvis, Festus; secretary and treasurer, Dr. Charles E. Fallet, De Soto; delegate, Dr. J. F. Donnell, Crystal City, and alternate, Dr. J. J. Commerford, Crystal City.

Dr. J. A. Townsend, House Springs, talked on "The Abuse of Charity" stressing particularly the clinics and asked that the Jefferson County Society support the St. Louis County Medical Society in their effort to eliminate it. It was moved by Dr. Charles E. Fallet, De Soto, seconded by Dr. John F. Rutledge, Crystal City, that the Jefferson County Medical Society go on record as being opposed to clinic abuse.

A motion picture on "Physical Examination of Children" was shown by Mr. Del Martz, St. Louis, representative of the Mead Johnson Company, Evansville, Indiana.

CHARLES E. FALLET, M.D., Secretary.

NINTH COUNCILOR DISTRICT

The Ninth Councilor District held its annual meeting at Mexico, November 8, with the Audrain County Medical Society as host.

In the afternoon session at the Mexico Country Club the following program was presented: "The Surgical Relief of Pain About the Head and Face," Dr. William T. Coughlin, St. Louis; "Treatment of Cystitis and Urethritis," Dr. H. H. Kramolowsky, St. Louis; "Rheumatism," Dr. R. H. Kinsella, St. Louis, and "Premature Separation of the Placenta," Dr. W. H. Vogt, St. Louis.

A barbecue dinner was served at the Club at 6 o'clock. Dr. A. R. McComas, Sturgeon, Chairman of the District, gave a short talk at the dinner.

The Rev. Father Alphonse M. Schwitalla, S. J., St. Louis, dean of the St. Louis University School of Medicine, spoke on "Medical Problems of the Laity" at a session in the evening to which the public was invited.

RANDOLPH-MONROE COUNTY MEDICAL SOCIETY

The Randolph-Monroe County Medical Society met December 11, 1934, in the Public Library Building, Moberly.

The following officers were elected for the ensuing year: President, Dr. C. C. Smith, Moberly; vice president, Dr. G. I. Allen, Moberly; secretary-treasurer, Dr. M. E. Kaiser, Moberly; censor, Dr. L. O. Nickell, Moberly; delegate, Dr. F. L. McCormick, Moberly, and alternate, Dr. T. S. Fleming, Moberly.

Because of poor road conditions Dr. J. C. Lyter, St. Louis, who was scheduled as a speaker, was unable to attend.

Dr. C. W. Greene, Columbia, presented an address on "The Physiology of the Coronary Arteries."

Dr. E. D. Baskett, Columbia, spoke on "Hyperthyroidism."

Both of these talks were greatly appreciated.

Guests present were Dr. M. C. McMurry, Paris; Dr. F. L. Harns and Dr. G. W. Hawkins, Salisbury; Dr. J. B. Stokes, Excello, and Dr. C. W. Greene and Dr. E. D. Baskett, Columbia. Members present were Drs. M. R. Noland, T. S. Fleming, C. E. Sutton, L. O. Nickell, Jesse J. Maddox, C. C. Smith, L. E. Huber, G. I. Allen, C. H. Dixon, F. L. McCormick and M. E. Kaiser, Moberly.

Following the meeting a luncheon was served at Miller's Cafe.

M. E. KAISER, M.D., Secretary.

STE. GENEVIEVE COUNTY MEDICAL SOCIETY

The Ste. Genevieve County Medical Society held its annual meeting December 12, 1934, the president, Dr. J. A. Wilkins, St. Mary's, in the chair.

Members present were Drs. G. M. Rutledge, A. E. Sexauer, R. C. Lanning and R. W. Lanning, Ste. Genevieve, and Dr. J. A. Wilkins, St. Mary's.

After disposing of routine business, the members discussed the 1935 meeting of the Southeast Missouri Medical Association in Ste. Genevieve, where its fifty-ninth annual meeting will be held.

The following officers were elected: President, Dr. G. M. Rutledge, Ste. Genevieve; vice president, Dr. J. A. Wilkins, St. Mary's; secretary-treasurer, Dr. R. W. Lanning, Ste. Genevieve; delegate, Dr. A. E. Sexauer, Ste. Genevieve; alternate, Dr. R. C. Lanning, Ste. Genevieve, and board of censors, Drs. A. E. Sexauer, C. G. Clapsaddle and R. C. Lanning, Ste. Genevieve.

The president appointed as a committee on public health and legislation Drs. J. A. Wilkins, A. E. Sexauer and R. C. Lanning.

R. W. LANNING, M.D., Secretary.

SIX COUNTY MEDICAL SOCIETY

The Six County Medical Society met in Caruthersville as guests of the Pemiscot County Medical Society, December 6. Dr. L. E. Cooper, Cooter, president of the Pemiscot County Medical Society, was chairman of the meeting which began with a dinner served at 7 o'clock by the ladies of the Presbyterian Church.

Thirty-five doctors enjoyed a most excellent dinner and a pleasant social hour.

Immediately after the dinner a postgraduate symposium on "Pneumonia and Influenza" was presented.

Dr. Anthony B. Day, St. Louis, discussed "Influenza and Pneumonia."

Dr. Joseph Costello, St. Louis, discussed "Influenza and Pneumonia as Related to Pediatrics."

Questions and discussion brought out many practical points applicable to the subject. The papers were presented in a most thorough and practical manner by the lecturers. No subject is of more concern to general practitioners than pneumonia and influenza.

This was the twenty-fifth quarterly group meeting, the first being held at Malden in December, 1928. The postgraduate programs are of great value and great interest to the doctors, but the attendance is not as great as it should be.

Dr. J. B. Luten, Caruthersville, was elected group secretary for a period of two years.

PAUL BALDWIN, M.D., Secretary.

BOOK REVIEWS

COLLECTED PAPERS OF THE MAYO CLINIC AND THE MAYO FOUNDATION. Edited by Mrs. Maud H. Mellich-Wilson and Richard M. Hewitt, B.A., M.A., M.D. Volume XXV. Philadelphia; W. B. Saunders Company. 1934. Price \$11.50.

This collection of 175 diverse articles fairly covers the progress of medicine and surgery during the past year. It continues the excellence of previous Mayo Clinic volumes, and reflects again the wide interests of the Mayo Clinic physicians.

Although the research worker will probably find the articles of particular interest and value to him in their journals of original publication, the physician who reads to keep abreast of medical progress will find the volume ideal.

The articles are too numerous to review individually, or even to list by title, but this reviewer found especially interesting the articles on peptic ulcer, amebiasis and ulcerative colitis, hyperinsulinism, the surgery of the colon, transurethral prostatic resection, the ketogenic diet in urinary tract infections, presacral nerve resection, and W. J. Mayo's "The Value of the Impponderables in Clinical Medicine."

Another reader will doubtless compile a similar list composed of entirely different articles. It is that kind of a book.

B. S. P.

OPERATIVE GYNECOLOGY. By Dr. H. v. Peham, Privy Councilor, Professor of Obstetrics and Gynecology; Chief of the I. Frauenklinik of the University, Vienna, and Dr. J. Amreich, Privadozent for Obstetrics and Gynecology of the University, Vienna. An introduction to the edition in English by George Gellhorn, M.D., Professor of Clinical Obstetrics and Gynecology, Washington University School of Medicine, St. Louis, Mo. Authorized translation made by L. Kraer Ferguson, M.D., Associate in Surgery, University of Pennsylvania. 467 illustrations, complete in two volumes. Volume one and two. Philadelphia: J. B. Lippincott Company. 1934. Price \$25.00.

The introduction to the English edition was written by Dr. George Gellhorn, St. Louis. It would not be an exaggeration to state that this work is probably the most technically exhaustive piece of anatomical and surgical demonstration that has been attempted in this particular field. The illustrations are numerous and conspicuous for their sharp, clear interpretation. The majority of them are colored in soft undertones and the accompanying legends are intelligible and instructive. The operative technic is largely patterned after that of foreign surgeons and in some instances is difficult to follow.

The subjects are treated in a rational sequence and a symmetry of excellence is maintained throughout the entire two volumes. Rarely does one chapter take precedence over another. The discussion of complete hysterectomy which delicately illustrates the relationship of ureteral placement to the pelvic circulation is probably most worthy of special commendation.

The first operation discussed in the treatment of uterine displacements is the Baldy procedure. In America it is generally referred to as the Baldy-Webster technic. Uterine displacements are most frequently found in the visceroptotic individual. The round ligaments are generally very much elongated and the distal ends are particularly attenuated. It is the experi-

ence of American operators that there is a greater tendency to recurrence with the Baldy operation than with some other methods of correction.

The chapter which deals with the pelvic floor dissection and the operation of perineorrhaphy is short and disappointing.

A brief review of a marvelous effort of this type necessarily falls short of an adequate appreciation. The authors, the artist, the translator and the publishers are equally commended for making possible this unusual contribution to the field of female surgery.

M. A. H.

MODERN CLINICAL SYPHILOLOGY. DIAGNOSIS, TREATMENT, CASE STUDIES. By John H. Stokes, M.D., Duhring Professor of Dermatology and Syphilology in the School of Medicine, University of Pennsylvania, etc. With 793 illustrations and text figures. Philadelphia: W. B. Saunders Company. 1934. Price \$12.00.

This voluminous work is from the pen of a master who writes vividly and fluently, and all his material bespeaks that he writes with authority. The vast literature of syphilis of the past 18 years has received much critical attention and this book serves admirably as a digest of the whole field with its chief features those of diagnosis and treatment. The illustrations are well chosen and are unusually instructive. The indexing has been done with great care and leaves nothing to be desired in a work which can either be consulted quickly or studied intensively at leisure. The index of authors is an uncommon but welcome addition to a textbook of this sort.

C. D. H.

MODERN DRUG ENCYCLOPEDIA AND THERAPEUTIC GUIDE. By Jacob Gutman, M.D., Phar.D., F.A.C.P., Consulting Physician, Manhattan General Hospital, New York, etc. For the use of physicians, dentists, pharmacists and medical students. New York: Paul B. Hoeber, Inc. 1934. Price \$7.50.

This book contains a complete list of the important nonofficial proprietary preparations, endocrine preparations, hypodermic medicaments, biologicals, allergens, foods and beverages, bottled mineral waters, and miscellaneous products together with their descriptions, therapeutic uses, physiologic actions, administrations, counterindications and supply. The index is cross divided into a therapeutic index, a drug index, and a distributors' and manufacturers' index which makes it easier for the reader to avail himself of its contents.

The reviewer finds this a most interesting and serviceable book. It is as valuable to the physician as the pharmacopeia is to the druggist. This volume certainly has a place in a reasonably complete library as it makes readily available to the physician a complete list of medicaments which the modern commercial pharmaceutical houses have put at his disposal for the treatment of disease.

Many of these nonofficial preparations surpass in efficacy many of the official preparations of the United States Pharmacopeia. And a complete list such as in this book must in the main, intelligently used, allow the practicing physician because of the wide variety of medicaments which it puts at his disposal and opportunity to reach a greater service to mankind who are afflicted with disease.

The author is to be complimented on his originality and thoroughness in offering a book of this sort to the medical profession.

O. D. M.

TUBERCULOSIS IN THE CHILD AND THE ADULT. By Francis Marion Pottenger, A.M., M.D., LL.D., F.A.C.P., Clinical Professor of Medicine (Department of Chest) University of Southern California, the School of Medicine. Illustrated. St. Louis: The C. V. Mosby Company. 1934. Price \$8.50.

Pottenger's new book which is dedicated to the medical profession represents a discussion of practically every phase of adult and childhood tuberculosis. He particularly emphasizes the importance of childhood tuberculosis from the viewpoint of prevention. He also gives considerable space to the subject of body defenses, immunity reactions, diagnosis, and methods of treatment. His favorite subject "The Visceral Neurology of Pulmonary Tuberculosis," is again discussed at length in this volume.

In his discussion of the various subjects the author presents a historical review of the development of our knowledge pertaining to the particular subject that he discusses. This method of treatment of the subject matter is one of the many reasons why the book reads easily.

In his review of childhood tuberculosis Dr. Pottenger takes a common sense attitude in regard to prevention and treatment. The author believes that a child without symptoms but with an unhealed primary complex infection should only be observed and not actively treated. He also expresses the view that epituberculosis is nothing more than an allergic phenomenon. Dr. Pottenger is a believer in tuberculin and uses it for diagnosis and treatment. He also takes a sympathetic view in regard to the value of BCG vaccine.

The subject of adult tuberculosis is covered fully, especially in regard to treatment. He is a believer in pneumothorax, phrenic operations and in thorocoplasty in selected cases. He does not believe in thorocoplasty or phrenic evulsion prior to allowing the lung to expand.

The book consists of 32 chapters comprising 590 pages and is well illustrated with 85 well chosen illustrations. Every subject under discussion is followed by a rich bibliography which makes the book especially valuable. The reviewer believes that this excellent book deserves a place in every medical library and is indispensable to the phthisiologist and especially to the general practitioner.

H. I. S.

I KNOW JUST THE THING FOR THAT. By J. F. Montague, M.D., Medical Director, New York Intestinal Sanitarium, etc. New York: The John Day Company. 1934. Price \$2.00.

Generally, a medical man expects to be bored when he takes up a book on medical subjects written for and addressed to the laity. Knowing Dr. Montague's ability and captivating style I had no such misgivings when I began his latest contribution to the general public, "I Know Just the Thing for That."

Personally, I belong to the old school that holds that the less one knows of their "innards" the better and that the general discussion of aches and pains and "what have you" outside of a doctor's office is a mark of ill breeding and poor taste. In these latter days however, when bowels, gases, etc., are fit subjects for conversation, when the daily press and radio discuss and advise as to our most intimate anatomical functions, I am glad that one more capable than a newspaper writer offers the public some accurate information and wholesome advice on the gastro-intestinal tract, its functions and dysfunctions especially referable to diet and elimination.

Aside from plain common sense and wholesome advice there is much humor in the book and one hurries through to the end as though it were a story so increasing is the interest. As the title would imply, he slashes right and left at many of the "cure-alls" so widely advertised by rival drug houses, as well as at some of the homely remedies so commonly recommended over the back garden fence. One of its chief merits lies in its emphasis as to what not to do as well as what to do.

While it is probable that most of the facts are well known to the alert physician, still, so cleverly and so forcibly does he arrange these facts that any physician, no matter how scholarly, will be improved by its perusal. As to the public generally, if they must know these vague details, and it seems that they must, I know of no better book to be placed in their hands.

R. D. A.

A TEXTBOOK OF GYNECOLOGY. By Arthur Hale Curtis, M.D., Professor and Head of the Department of Obstetrics and Gynecology, Northwestern University Medical School; Chief of Staff and Chief of the Gynecological Service, Passavant Memorial Hospital, Chicago. Second edition, reset, with 300 original illustrations chiefly by Tom Jones. Philadelphia and London: W. B. Saunders Company. 1934. Price \$6.00.

Three and one half years subsequent to the initial presentation there appears this second edition with the addition of 113 pages and 78 illustrations. The author has thoughtfully rearranged and added a minimum number of chapters while preserving the original outline, and appended new developments leaving the volume still lacking any undesirable bulkiness.

Among topics accorded placement in his section "Infectious Processes" are: Rectal complications of gonorrhea; the Elliott treatment of pelvic inflammation; theelin in vulva-vaginitis; additional pathology and the pneumoperitoneum treatment of tuberculosis of the adnexa; description of two new conditions, "lymphogranuloma inguinale" and "ulcus vulvae acutum"; reemphasis of simultaneous occurrence of syphilis and carcinoma of the cervix, and a slight modification of his views on syphilis and surgery.

The already admirable chapter on carcinoma of the cervix shows possibly the most complete embellishment. The more recent classification according to growth-extent is admitted with Hinselmann's colposcopy and leukoplakia reports; Schiller's iodine test; chordeotomy and sympathectomy for relief of pain; personal views and technic of radium treatment with particular emphasis on preradiation maneuvers. Complete graphic technic of the Wertheim and the Latzko operations appears.

The ovarian chapters are unified with the recently much discussed arrhenoblastomas, dysgerminomas, and granulosa cell tumors appropriately catalogued.

Vaginal plastic surgeons will welcome the complete details in pictures of the Manchester-Fothergill operation for prolapse; vaginal hysterectomy; repair of small urethrocele and description of the LeFort technic.

Interesting addenda to the "Special Topics" section are: Alcohol injections in dysmenorrhea, conization of the uterine cervix, sodium thiosulfate injections and the leech treatment in milk-leg, resection of the internal pudic nerve and vulvectomy for leukoplakia.

The volume remains a satisfactory text and yet more than retains its appeal to the practitioner and specialist as a collection of usable, informative monographs.

A. B. S., Jr.

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DIET IN HEALTH AND DISEASE

JOHN H. MUSSER, M.D.

VICE PRESIDENT AMERICAN MEDICAL
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NEW ORLEANS, LA.

I am going to talk to you about diet and about a few things concerning nutrition. I have been asked to make my talk half scientific and half popular. That is a rather difficult proposition. If you make the talk too popular the physicians will say, "That fellow does not know very much," and if you make it too scientific the people who are not interested in science will say, "That may be all right but it is not very interesting." So it is difficult to give a talk between the two eloquent speakers of the evening and equally hard to try to ride halfway between science and popularity.

I will show you some slides based on a series of lectures I give to students.

NORMAL DIET

A normal diet in order to maintain health should contain (1) carbohydrates, fat, protein (energy, tissue builders); (2) fluid (water); (3) certain inorganic substances and minerals: Iodine, chlorine, flourine, magnesium, lithium, barium, sodium, potassium, iron, sulphur, copper, manganese, calcium and phosphorus; (4) vitamins (A, B, C, D, E, G).

The normal diet should have carbohydrates, fats and proteins. We all know about proteins, found chiefly in meat. They build tissues and they provide much of the energy to carry on our daily occupations. They are essential to the human being.

WATER

Water is essential to life. Deprivation for from 60 to 80 hours causes death. Water acts as a (1) medium for body chemical changes; (2) solvent for foods, colloids and electrolytes; (3) carrier of waste elements; (4) common

carrier of nutritive elements; (5) important in heat regulation (dehydration fever of experimental animals). An excess causes water intoxication; reduction, anhydremia (fevers, diabetes).

I will now stress the importance of water in the diet. Water seems like a very simple subject to talk about but I can assure you that our knowledge of water metabolism has been rapidly developing in the last few years. Water is the most essential constituent of our diet. Man can live almost indefinitely without any food if he has water, but if you put a man where he cannot get water for from sixty to eighty hours he will die and the rapidity of his death will depend upon the quantity of moisture in the atmosphere. He will die much more promptly in Arizona than in the Gulf States. You have salts in your body, sodium chloride for example, but in order to get them into solution you must have water. It acts also as a solvent for food. It is the common carrier of nutritive elements and at the same time the waste elements are gotten rid of through its intermediation. I think most interesting is the fact that if water is withdrawn for any period of time dehydration takes place and as a result fever occurs. It is also rather interesting, and I think not generally known, that if you give water to excess to an experimental animal you can intoxicate him, not in quite the same way as the gentleman to whom you give alcohol, but a definite syndrome develops when animals are given too much water. Reduction in water causes a severe anhydremia especially in children who are sick and in the adult who is comatose. Unless they are given water by mouth, by vein, or by putting it into the muscles or the rectum, a severe state arises in the body chemistry and death is likely to take place as a result of extreme dehydration. Consequently, one of the first orders a physician will give to the person taking care of the seriously sick individual is to give plenty of water, and he will specify definitely how much water the patient is to take, not say "Give plenty of water," but "Give 1200 to 1500 cc. in twenty-four hours"

in the various ways we have of giving it. Water and fluids are supplied by various liquid foods we take and also in solid foods. Melons and tomatoes are almost entirely water, while toast will supply very little.

INORGANIC SUBSTANCES

Copper and manganese are found in vegetable leaves and liver; iron in internal organs (kidney and spleen), lean meats, leafy vegetables, such as lettuce and spinach; calcium and phosphorus in milk, fruits, eggs and oatmeal; iodine in sea food, lettuce, spinach and beet leaves; magnesium is most constant of blood cations, and chlorine is present in all foods.

The inorganic substances are of extreme importance. It is impossible for the body to function properly without these important salts. I mention the more important ones but actually the body contains nearly all of the elements we know in chemistry.

The relationship between copper, manganese and iron is interesting because now it is known that copper and manganese supplement the action of iron. A certain amount of iron (15 mg. daily) is needed by the body. Iron is not eliminated to a great extent, but if an anemia develops then we have to give iron in large quantities. In the last two or three years it has been found that in giving iron to individuals who have anemia we should give it not as we used to in doses of five to ten grains three times a day, but in teaspoonful doses. If, however, we can supplement small doses of iron with copper or manganese we get a very much more complete response than we do if we give iron alone.

Calcium and phosphorus are of primary importance to the growing child. Calcium in sufficient and adequate quantities permits of normal bone growth in the developing child; it helps to manufacture bone. Phosphorus is a constituent of all cells, found in particularly large amounts in those of the central nervous system. A considerable amount of calcium is essential for the growing child. At least 450 milligrams, or about a half teaspoonful, is necessary for the child each day. In the ordinary diet the child usually gets just about enough. If he does not get quite enough he will develop weakness of the bones, so the minimal amount usually is disregarded and we give the child an optimal amount, not just as much as he needs but more, therefore the growing child should have a quart of milk a day because milk contains more calcium than any other ordinary food.

Iodine is very interesting as a food constituent because inadequacy of iodine produces goiter and in the so-called "goiter districts" where the drinking water contains an inadequate amount of iodine and also the green vegetables which take up the subsoil water are in-

adequate in their iodine content, the children in those districts will develop goiter. Goiter can be done away with or prevented by adding iodine to the food. A very minute amount—three to four grains of potassium iodide two or three times a month is enough to supply the need of the adolescent.

Magnesium is of some interest, also chlorine because the latter is the particular inorganic substance from which ordinary table salt is made. Chlorine is so constant in food that we do not worry about it. The worry is not to have the patient get a sufficient amount but to see that he does not get too much because it is believed by some physicians quite possible that an excessive amount of chlorine may tend to the development of high blood pressure.

Vitamins are much discussed food constituents. What are vitamins? We did not know until very recently, as a matter of fact, but that they were intangible and totally unknown substances. We did know that they were necessary for the proper maintenance of life, growth and sexual development and for the prevention of certain diseases and disorders. In discussing vitamins I do not want you to get the impression for one minute that some of the outstanding examples of deficiency of a particular vitamin are commonly seen. As a matter of fact, it is extremely seldom that we see a case of xerophthalmia, which represents the most outstanding example of what happens when a patient does not get enough vitamin A, but we do see many borderline cases whose functional disorders may be attributed to inadequacy of vitamins.

VITAMIN A

Occurrence.—(1) Green plants (spinach, lettuce, cabbage); (2) yellow plants (carotin) (carrots, corn, squash, sweet potato); (3) cream, egg yolk, cod liver oil.

Deficiency Causes.—(1) Xerophthalmia; (2) nyctalopia; (3) stunted growth; (4) susceptibility to infection; (5) sterility; (6) gastrointestinal disturbances and (7) cord changes.

Pathology.—Keratinization of lining and glandular epithelium.

This vitamin, it has been recently shown, is derived from carotin, and carotin is found notably in yellow plants among which are carrots, squash and sweet potatoes; it is also found in cream, and the yellower the cream the higher its vitamin A content. The disease, xerophthalmia, was first recognized during the World War, more particularly in Denmark. The Germans were very short of butter fat which is an important part of the diet. The Danes, being thrifty souls, would centrifuge their milk three or four times to get every speck of butter fat out of the milk and ship it to the Germans at an enormous

profit, but in a great many cases the Danish children, having to drink skimmed milk, developed xerophthalmia. This is a disease in which the secretions of the eye dry up and disappear causing calluses on the eye and the loss of the eye. About 500 children in Denmark lost their eyes before it was found out that their blindness was due to vitamin A deficiency.

Another condition is night blindness in which the patient cannot see at night. If he should go into a room such as this he could not see at all. On the street at night he would be lost if it were not properly lighted. I remember in France we had three or four cases of night blindness and it was thought smart by some of the soldiers in the hospital to take these boys out to the park at night, then they would disappear and these night-blind men were lost. Night blindness is due to inadequacy of vitamin A.

Experimental animals fed an inadequate amount of vitamin A, when contrasted with control animals, show stunted growth. They pick up rapidly when fed vitamin A but if they attain maturity they are often sterile. This also may occur in the adult when as a child he did not get enough of this particular vitamin.

Vitamin A deficiency is also responsible for a great many gastro-intestinal disturbances and vague symptoms which arise in this tract. They cannot be given a specific name; they are associated with abnormal bowel movements. Often the patient has a certain amount of weakness of the intestinal wall to exaggerate the constipation. In those cases there is often spastic constipation. The time-worn treatment of spastic constipation was not to feed bulky foods but as a matter of fact bulky green plant foods are indicated and individuals suffering with this condition need this type of food in order to overcome gastro-intestinal disturbances depending on inadequacy of this vitamin.

This will not interest the laity particularly but it will the medical practitioner and that is the fact that the cord changes which occur in pernicious anemia, the remedy for which is now the feeding of vitamin B, are apparently due not to absence of that particular vitamin but rather to the absence of vitamin A.

VITAMIN B

Occurrence.—(1) Pericarp of grain; (2) animal organs; (3) egg yolk and milk; (4) green vegetables.

Deficiency Causes.—(1) Beriberi (wet and dry); (2) digestive disturbances (anorexia); (3) heart disorders.

Pathology.—(1) Degenerative changes in (a) heart and (b) gastro-intestinal tract; (2) multiple neuritis (motor and secretory nerves).

Vitamin B, historically, is of the greatest importance because it is one of the first vitamins discovered to be necessary to life. It has a varied nomenclature and many subdivisions. Vitamin B occurs in the outer covering of grain. That is how it was found out that beriberi, first recognized as an entity in Japan, is due to the absence of this vitamin. A Japanese sea captain discovered that his sailors were developing swelling of the legs associated with pain. He had an idea that it was because the rice was too highly milled and that if they were given rice that was not so highly milled but had the outer covering left on they would not develop this disease. He tried it out by sending a shipload of sailors out to sea for six weeks and feeding them rice that was not highly milled. They did not develop beriberi, whereas on the control boat that went out on which the men were given white, polished rice, about 50 per cent had beriberi.

This vitamin is also found in animal organs, notably in liver, kidney and sweetbreads; also in egg yolk and in some vegetables. You do not see beriberi much in this section of the country but we see it quite frequently in the South. The Louisiana trappers are prone to make their diet of two or three foods—grits, molasses and pork—three times a day for 365 days in the year. Many of these people are in the swamps and can get no other article of food except fish. They develop at times swelling of the limbs and pain along nerve trunks, true beriberi.

The early part of last week I heard Dr. Minot say that alcoholism is not due primarily to the alcohol imbibed but represented entirely a deficiency condition; that the alcohol merely plays its part in injuring the intestinal tract so that the vitamin is not absorbed. As proof of this he took a group of men who had alcoholic neuritis and gave them from a quart to a quart and a half of liquor a day. This made their neuritis worse; then he shifted them to a diet high in vitamin B, still continuing the alcohol, and they got well. That is an entirely new concept and perhaps the first time that particular concept concerning alcoholic neuritis from grain alcohol has been brought forth.

The absence of vitamin B will bring about digestive disturbances, the most important of which is loss of appetite. Very often it can be controlled by feeding patients food high in vitamin B. Absence of vitamin B also produces certain heart disorders. A man who has beriberi may be a perfectly healthy looking man but may keel over and die. We have seen a few such cases recently in people who were not getting a balanced diet. Sudden death is possibly due both to myocardial changes and to inflammation of the nerves that control the heart.

VITAMIN C

Occurrence.—(1) Citrus fruit (orange); (2) tomato juice; (3) many fruits; (4) raw meat.

Deficiency Causes.—(1) Scurvy; (2) dental caries; (3) poor health (babies); (4) mental sluggishness.

Pathology.—(1) Diffuse hemorrhage; (2) fragile bones.

The vitamin you feed babies is vitamin C. Babies are fed orange juice and tomato juice about fifteen minutes after they are born in order that they may have an adequate amount of vitamin C. The mother's milk provides the vitamin but very often that is inadequate and she does not have enough of this particular vitamin so, in order to prevent poor health in the baby, the small child is started immediately on three ounces of orange juice or tomato juice each day. Vitamin C is found also in other fruits and in raw meat. The vitamins are all found in raw meat. You remember that Stefansson while in the Arctic regions lived for a long time on raw meat alone. You and I could not do it for we eat our meat cooked which destroys the vitamins, so that we have to supply vitamin C from other sources. Incidentally the savage does not get these deficiency diseases because he does not have to depend on the corner delicatessen for his daily rations. Scurvy is an outstanding example of what the absence of vitamin C will do.

Illustrating the beneficial effects of adequate vitamin C; in many instances the Negro has beautiful teeth. Why? Because he eats fruits raw and meats partly cooked and gets an adequate amount of vitamin C.

The question of mental dullness is interesting. Professor Hopkins, one of the greatest biochemists of the world, told me about a school in England in which the boys were falling behind in their lessons. The head of the school could not understand why. Finally somebody thought they should consult a doctor to see if the food was all right and they called in this biochemist who immediately changed their diet, giving these young boys plenty of fresh fruit and vegetables and their mental sluggishness disappeared.

VITAMIN D

Occurrence.—(1) Cod liver oil; (2) milk; (3) egg yolk; (4) viosterol (irradiated food); (5) sunlight (ultra violet rays).

Deficiency Causes.—(1) Rickets; (2) osteomalacia; (3) disturbance of the Ca-P metabolism; (4) tetany; (5) dental changes.

Pathology.—Bone changes; imperfect calcification; overproduction of osteoid tissue.

Vitamin D is another vitamin given to babies almost as soon as they are born. It is a very important vitamin, especially in preventing rickets. It is found in cod liver oil, milk, egg

yolk and viosterol which has been called "canned sunshine." As there is not enough sunshine in the modern city civilization children are given viosterol or put under an ultra violet ray lamp. Rickets is extremely common in city children. It is estimated that 50 per cent of the children in New York City, while they do not have outstanding rickets, do have rickets which can be recognized by the roentgen ray. We are less likely to see it in country children; they get out in the sunshine. We have been asked why they do not have it at the North Pole. They eat the liver of the cod and all other fish, and despite the fact that they have six months' darkness they are getting plenty of this vitamin during six months and it is stored in the body.

VITAMIN E

Occurrence.—(1) Muscle tissue; (2) fat; (3) seeds and green leaves of plants.

Deficiency Causes.—Sterility.

Pathology.—Fetal death (resorption after implantation).

Vitamin E was only recently discovered. A deficiency of this vitamin produces sterility in both male and female. In the female its lack or inadequacy causes fetal death.

VITAMIN G

Occurrence.—(1) Yeast; (2) liver and liver extract; (3) lean meat; (4) milk and eggs; (5) yellow foods (carotin).

Deficiency Causes.—(1) Pellagra; (2) "black tongue."

Pathology.—(1) Cutaneous lesions; (2) gastro-intestinal lesions.

Vitamin G, sometimes called the P-P or pellagra-preventing factor, is notably found in yeast, in liver and liver extract. Deficiency of vitamin G will cause pellagra, an interesting condition seen mainly in the South, but it is quite common in the North, which is associated with dermatitis, diarrhea and dementia in exaggerated cases.

I have given you some outstanding features of nutrition and vitamins. I should like to tell you about the work of McCarrison, had I the time, and his studies in India made in a lonely Himalayan mountain station without scientific help and assistance. His accomplishments are truly a monument to the investigative spirit.

1430 Tulane Avenue.

Leopold Brahdy, New York (Journal A. M. A., Feb. 16, 1935), observed 388 cases of frost-bite between December, 1933, and March, 1934. Temperatures below 14° F. constitute an industrial hazard to outdoor workers; high winds add to the risk; humidity is not a factor. Older men are not more susceptible except as they have cardiovascular disease or diabetes. General nutrition and clothing are of importance; more important than any other factor is the length of exposure after the first symptoms appear.

UNUSUAL PYOGENIC OSTEOMYELITIS

A GENERAL DISCUSSION AND A REVIEW OF 138
SPINE AND PELVIC LESIONS

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ST. JOSEPH, MO.

Unusual forms and features of pyogenic osteomyelitis are attributable to a variety of factors and find expression in as many and variable situations. A better acquaintance with so-called uncommon manifestations will help to clarify infection in bone in general which has been none the less obscure until quite recently. I shall discuss the broader aspects of unusual pyogenic osteomyelitis preliminary to that of spine and pelvic localization of the disease. This material was studied and collected at the State University of Iowa hospitals in the department of orthopedic surgery. In order to complete the compilation of statistics the records of the department of general surgery and head specialties are included.

Pyogenic infection in bone has always held the interest of the medical profession. Osteomyelitis dates back to the origins of human paleopathology. Pathogenic parasitism was probably evolved from easy going commensalism and symbiosis. Fundamentally the disease produces relatively constant pathological and clinical features. It is remarkable chiefly because it arises within an unyielding complicated hard bony structure. The initial lesion usually begins in the metaphysis and affects more or less the adjoining diaphysis. The bacterial agent is the staphylococcus in the great majority of instances. The lesion occurs so typically in children that further description is unwarranted. However, the unusual in osteomyelitis challenges the entire field of medicine and surgery. Such manifestations may be due to practically every factor involved in the disease such as age, onset, portal of entry, course, recrudescence, type and virulence of the invading organism, complications, pathology, differential diagnosis, the anatomical localization or even the portion of the particular bone involved. It should therefore be noted that for each and every usual factor in the disease there can be provided the unusual as well.

Hematogenous osteomyelitis is generally dramatic in its onset. In infancy, adult life

and old age characteristic differences may be noted. The onset may be subacute or even insidious in older individuals who are also more likely to exhibit a localized type of focus even as is so often the case in adults when it is merely a recrudescence of a childhood infection. With the cessation of skeletal growth the juxta-epiphyseal zone of rapidly growing vulnerable cells disappears and diaphyseal infection is now more frequently noted. This is also conditioned upon the probable compensatory vascular changes that occur at this time. The natural cartilaginous disks are also absent in adult bone which facilitates extension into neighboring joints. Nurslings present an unusual form of osteomyelitis of the jaws which differs from other forms only in so far as it is associated with the physical conditions of childbirth and the environmental conditions immediately following. The pneumococcus has a predilection for infants. In children the less virulent types of streptococcal hip infections may be observed that yield especially to conservative measures, such as aspiration and immobilization rather than the disfiguring more radical surgical procedures.

Trauma preceding the initial symptoms may be of considerable medico-legal importance and is the most common cause of recrudescence. To provide its relation to the lesion in question it must be shown that previous to a reasonably intense injury the patient was absolutely well and temperature free and that the local and general reaction set in within several days. The relation of trauma to osteomyelitis was classically exemplified in those instances of the disease which followed simple uncomplicated fracture of the long bones. It can of course be argued that infection after such injury is rare.

The usual portal of entry for the invading bacterial agent is some break in the body mucosae or skin surface. This cannot be determined in the majority of cases. Of particular interest are those instances that are ushered in by the ordinary acute infectious diseases especially when associated with upper respiratory symptoms. It has been proved that typhoid organisms may be present in the marrow of vertebral bodies as early as the first week of the disease to the sixth week of convalescence. In streptococcal infections these organisms remain in the marrow in great numbers even after the primary focus is healed. Most of the acute infectious diseases are accompanied by generalized pain and aching in the bones. These

From the department of Orthopedic surgery, State University of Iowa, service of Dr. Arthur Steindler.

Read in part before the Buchanan County Medical Society, Sept. 5, 1934.

symptoms may therefore be due to the actual presence of the organisms in the bone marrow. Other factors being favorable an osteomyelitis may arise and does occur as shown clearly in this series. All the ordinary acute infectious diseases are definitely represented. When smallpox affects the bone there usually follows a characteristic residual growth disturbance, particularly when the growing long bone has been involved.

The theory of a specific causative organism in pyogenic osteomyelitis was overthrown soon after the initiation of the bacterial era in medical science. All types of organisms may produce this condition, such as the *brucella melitensis*, typhoid bacillus, pneumococcus, meningococcus, gonococcus, gas bacillus, streptococcus or mixed forms. These do not always suppurate or produce such profound local or general reactions as does the usual invader, the staphylococcus. The latter favors intense local pus formation due to its developmental tendency toward concentrated clumping which is in marked contrast to the chain growing spreading type of streptococcal infection. These other bacterial agents produce in a general way reactions somewhere in the scale between the extremes of the tubercle bacillus and the ordinary pus forming organisms. The streptococcus *viridens* infection may produce bony changes simulating osteitis fibrosa localisata. The typhoid bacillus usually involves the spine. This germ especially may arise without suppuration and subside and months or years later recur with abscess formation. The well known shirt stud type of abscess has been especially associated with typhoid and lues. The pneumococcal infections are as a rule limited and give rise to but little constitutional disturbance except when associated with joint suppuration in the adult. Various attenuated types of staphylococci and streptococci have been recovered from such little understood forms of aseptic necroses as Perthes disease.

The mixed types of infection may be very serious. These may occur primarily but usually manifest a secondary infection by way of either a spontaneous sinus or following operation. Secondary dressings must be applied under sterile precautions. Such symbiotic relationships find expression in attenuation or intensification of one or more of the causative organisms. Much has been written concerning postoperative progressive gangrene of the chest and abdominal wall but little attention has been focused upon this symbiotic situation in mixed bac-

terial invasion of the bone marrow. Occasionally different organisms are recovered from metastatic or other complicating foci in pyogenic osteomyelitis. Secondary invasion is enhanced in those debilitated from chronic bone infection as from any other chronic organic constitutional disease. The streptococcus is the most frequent offender in such terminal blood stream infections. Attenuation is the rule in metastatic foci, but their successful treatment depends largely upon the quiescence or healed state of the primary bony pathology.

Brucella infection is as common as typhoid and paratyphoid in Iowa. It is becoming more and more frequently recognized as the inciting agent in many mysterious diseases. About eight such instances of bone affection have been observed in these clinics. *B. pyocyaneus* is an occasional secondary invader in osteomyelitis. *B. coli* results in a particularly stubborn type of lesion. The gas bacillus was rarely observed in this series.

The unusual pathological situation is especially interesting. The variety of reactions in bone demonstrates the extreme lability of a tissue ordinarily considered to be inert. The usual pathologic picture is that of a thrombo-embolic process with its attendant suppuration and necrosis based in part upon the locally induced anemia. The fixed tissue (fibroblastic) reaction is prominent. When this predominates a chronic fibrous form of osteomyelitis results. This may be clinically subacute or chronic and had been recognized only in the form of localized cyst formation. In this series gross destruction of the entire ischium and ilium has occurred on the basis of this pathological reaction, and has simulated clinically and radiologically malignant degeneration. It is characterized by marked production of fibroblasts and bone absorption with a minimum of leukocytic infiltration and exudation and very little new bone formation. Some localized forms remain clinically "silent." In our studies this reaction appears to be in part a primary and in part a secondary phenomenon. A mature fibrous tissue may of course fill in completely osteomyelitic or traumatic bony defects. This is an end result process and further changes into bone are not to be expected.

The so-called Brodie's type of bone abscess is represented by a localized area of reduced density which is lined by a membrane and surrounded by a reactive zone of sclerosis. This occurs typically in the ends of long

bones as a primary chronic lesion. It may also occur clinically in flat bones as a primary or secondary focus. These may remain latent for a long time and then give rise to the usual localized nocturnal symptoms of osteocopic pain.

Sclerosing nonsuppurative periostitis (Garre) is a spindle form thickening of the cortex of the long bones which takes place in children without known etiology or much local or general disturbance and usually ends in recovery. It is accompanied by the usual osteocopic pain. The thickening occurs chiefly in the cortical bone and tapers off at the periphery.

There is also described a mysterious form of nonsuppurative osteomyelitis called "quiet necrosis" by Paget. The sequestrum differs from the sequestrum of ordinary osteomyelitis in that it is eroded on all surfaces by caries rather than by the usual gross process of necrosis. The separation is not complete and there is no line of demarcation. It is apparently induced by an anemia of the deeper portions of the compact bone and not by the sudden blocking of its circulation by an acute and virulent inflammatory exudation as in acute osteomyelitis; it is more likely to be observed in older individuals.

It is important to emphasize at this time that regardless of the type of tissue reaction the vast majority of inflammatory bone lesions will at some time or another in their evolution or even involution be accompanied by the characteristic symptoms of osteocopic pain. The pain is always localized, deep boring in character or modified in degree and is always intensified at night.

The differential diagnosis involves a consideration of practically all diseases of bone. As a corollary to the relation of the condition to acute infectious diseases it must be remembered that variable toxic erythematous skin eruptions are commonly observed during the course of pyogenic osteomyelitis which will simulate many of the characteristic eruptions associated with the contagious types of acute infectious diseases.

Circumscribed inflammations involving only the periosteum or cortex occur infrequently subsequent to hematogenous infection. A study of the mechanism and pathogenesis of this type of bone infection as well as clinical observation leave no doubt that they do occur as such, being conditioned upon an unusual lodgement of an infected embolus either in the periosteum or cortex and resulting usually in a well controlled and even nonsuppurative lesion. I have seen

these most frequently as metastatic foci, sometimes so benign that surgical treatment was not necessary. Many surgeons still believe that subperiosteal evacuation of pus by simple incision is sufficient treatment in the great majority of instances where it is actually met as an extension from a marrow focus. It is safe to assume that a marrow lesion is present when gross subperiosteal pus is encountered at operation which requires adequate drainage.

By far the most common mistake in diagnosis in pyogenic osteomyelitis is "rheumatism" because so many juxta-articular foci result in a sympathetic joint effusion. A surgical joint lesion can be readily determined by aspiration of the joint contents and laboratory examination when the gross appearance of the fluid is not conclusive enough. In many instances a combined lesion presents and the primary bony focus must be sought and vigorously drained. Not infrequently an attenuated streptococcal or even staphylococcal joint infection is accompanied by alarming constitutional symptoms but will subside quickly after aspiration and immobilization. However a frank supuration of a joint requires immediate adequate surgical drainage. Clinically when this occurs the accompanying concentric muscle spasm locks the joint in the position of equilibrium prescribed for that particular situation. Further motion is impossible or exceedingly painful and limited when attempts to elicit motion are made upon the conscious patient. This condition would be axiomatic were it not for the following two modifying situations: Some joint motion can always be obtained objectively when the lesion has not yet involved the joint cartilage and when the joint has been chronically distended and consequently has suffered some degree of relaxation.

Mycotic lesions are often widespread infections. Actinomycosis most frequently involves the vertebrae, ribs, sternum and jaws, but rarely as an independent bone lesion. The sporothrix produces a suppurative osteomyelitis with abscess formation and pathological fracture. The coccidioides simulates tuberculosis. Diffuse luetic osteomyelitis must be ruled out in many instances in the young as well as in adults. It may begin any time one and a half years after infection and is usually confined to one subcutaneously placed long bone.

The massive infiltrative type of tuberculous infection of the long bones simulates pyogenic osteomyelitis. Fourteen cases

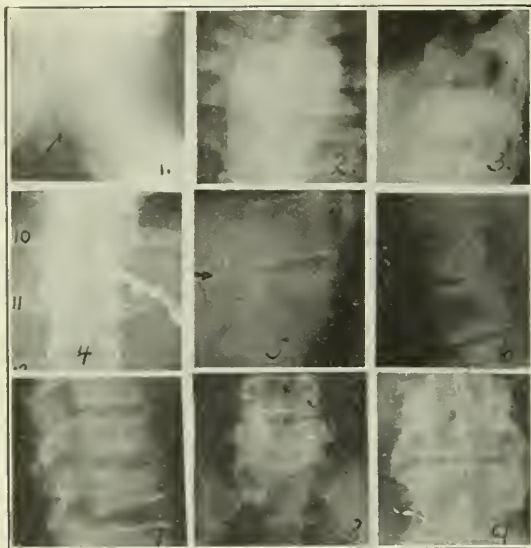


Fig. 1. Demonstrating the different types and regional localizations of the disease.

1. Male aged 32 years. Osteomyelitis of the second and third cervical vertebrae and presenting a classical retropharyngeal abscess with all the attendant symptoms of hoarseness, difficulty in swallowing and breathing. Drained through the lateral triangle of the neck and healed satisfactorily.

2. Male aged 17 years. Involvement of the upper dorsal bodies and presents a paravertebral abscess. Complicated by empyema which was drained. Original focus in spine is taking care of itself so far and patient is up and about with operative sinus healed. A flare up or recrudescence seems almost inevitable in the presence of this abscess unless it is exceptionally walled off or absorbed.

3. Male aged 11 years. Involvement of the seventh and eighth dorsal bodies. The lesions are focal. Treatment here also consisted in drainage of the complicating empyema because the original spinal focus was not suspected at the time. Healed.

4. Male aged 17 years. Acute onset with multiple osteomyelitic foci. Large retromediastinal abscess was evacuated and complicated by rather brisk hemorrhage. Sacro-iliac joint also resected. Healed.

5. Female aged 49 years. Onset with coma and paraplegia. Huge retroperitoneal abscess drained for involvement of the twelfth dorsal vertebra. Septicemia and death. Streptococcus recovered from blood and pus.

6. Male aged 6 years. Involvement of the first and second lumbar vertebrae. Perinephritic abscess drained. Had several metastatic foci and is now healed as illustration shows.

7. Male aged 60 years. Destruction of the second and third lumbar vertebrae. Drained through posterior route and bodies curetted. Complicated by hemorrhage. Stormy convalescence but finally healed.

8. Male aged 19 years. Involvement of the fourth and fifth lumbar vertebrae. Drained posteriorly and by sacro-iliac resection. Pyemia and death by secondary invasion of streptococcus.

9. Female aged 38 years. Acute onset three weeks after normal delivery. Subsided gradually and spontaneously with residual caudal neuritis. Almost complete bony bridging has occurred between the third and fourth lumbar vertebrae.

have been observed in this clinic. Biopsy examination is essential to the diagnosis especially in those cases free from pulmonary involvement.

Pyogenic osteomyelitis may simulate bone tumors, and vice versa. Differentiation is often impossible in those tumors which are sometimes accompanied by a rise in temperature and increased leukocyte count. In tumor there is more uniformity of destruction of bone producing elements. So-called onionization or lifting of the periosteum is



Fig. 2. Male aged 33 years. Malta fever syndylitis of the fourth and fifth lumbar vertebrae complicated by staphylococcus secondary infection. Drained posteriorly and healed. The illustration shows the classical bulging of the left psoas muscle shadow when this structure is invaded.

more common in inflammation than in tumor formation as we were only recently taught. Pus is more likely to raise the periosteum than a malignant infiltrative growth. When the decision is close osteomyelitis is most likely to be the underlying cause if for no other reason than that it is by far the more common lesion. Immediate exploration and biopsy when necessary should be resorted to in any situation. The chief difficulties arise when some unusual localization of the disease occurs, particularly when it is an unusual portion of the affected bone as the lesser trochanter of the femur or any number of the various prominent bony processes of the skeletal system.

Pyogenic osteomyelitis sometimes occurs secondarily and masks the basic bony pathology be it common or rare. This is met with most frequently in tuberculous disease after sinus formation has occurred. We have also observed it in two instances of Paget's disease both of which were unusual in themselves as only one bone was involved, the tibia in one and the femur in the other.

Finally the vast majority of clinical differential situations are largely determined by the various anatomical localizations of the disease.

The complications of osteomyelitis are similarly provoked by the bony localization but in general they are metastasis, sinus formation, pyemia or septicemia, extension into neighboring tissues, and chronicity. Un-

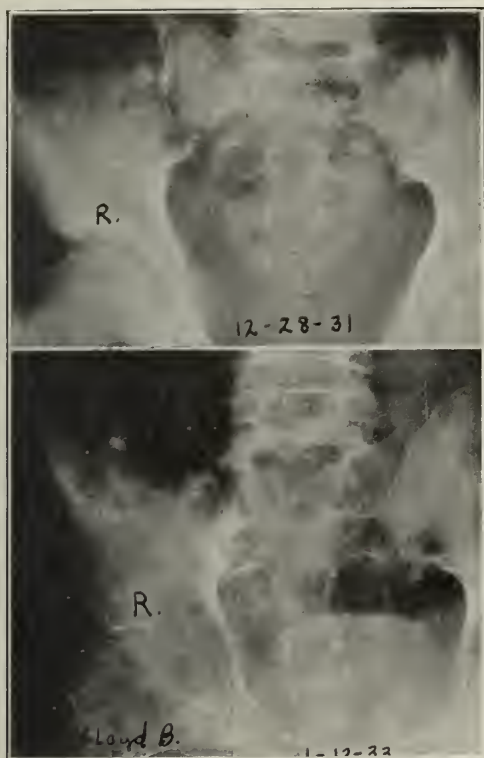


Fig. 3. Male aged 15 years. Osteomyelitis of the right sacro-iliac joint and ilium. Total resection followed by healing and complete recovery. The lower illustration shows the readjusted healed sacro-iliac region with some pelvic deformity.



Fig. 4. Female aged 12 years. Involvement of the entire ilium with residual flexion deformity of left hip. Total resection performed and a subtrochanteric fracture sustained when the hip deformity was forcibly corrected at time of operation. Complicated by pelvic thrombosis. Now practically healed.

usual complications such as deformities, pathologic fractures and dislocations, epiphyseal separations, pseudo-arthritis, erysipelas, vascular disturbances and accidents, nervous system involvement, malignant degeneration, epithelialization of the sinus tract, myositis ossificans and skin defects have been observed in this series.

Disability incident to locomotor disturbances is the gravest and commonest sequelae of pyogenic osteomyelitis. It ranges from mild dysfunction to actual loss of limb subsequent to destructive or therapeutic amputation. Local and widespread paralysis is not uncommon after involvement of such specific sites as the upper end of the fibula, lower end of the humerus, or spine in which situations the peripheral and central nervous system is particularly vulnerable. Skeletal deformities per se are by far too common and can be minimized or prevented by adequate immobilization of the affected limb in the neutral position. Growth disturbances are due either to toxic or direct destructive influences upon the vulnerable growth centers and may result in stimulation, retardation or entire cessation of growth, depending upon the virulence of the infection, the extent of the

lesion and the adequacy of treatment. Prompt adequate drainage is indicated in any site of osteomyelitis no matter how closely approximated to the growing end of the bone. An experienced operator will do far less damage than an untreated or inadequately handled lesion. As there is no interstitial bone growth possible shaft deformities are for the most part almost all of purely mechanical and static origin, on the basis of more or less extensive destruction of bone. The extreme in this type is the pathological fracture which occurs most frequently in the femur and can also be minimized or prevented by plaster cast immobilization and a more narrow degree of saucerization during operation.

Pseudo-arthritis may result from the extensive necrosis present but usually follows radical subperiosteal excision of the entire circumference of the bone when the periosteal blood supply has been initially or operatively destroyed and regeneration therefore impossible. Care must be exercised not to injure the periosteum unnecessarily during extensive operative debridement upon bone. It is interesting to note that in the author's three instances of total resection of the



Fig. 5. Male aged 16 years. Six weeks' duration with acute onset and involvement of left ischium. Roentgenogram suggests malignant degeneration. Total posterior resection was followed by uncomplicated convalescence and regeneration of bone.

ischium regeneration has occurred to a remarkable degree.

Vascular complications occurred as vessel erosions with subsequent hemorrhage, thrombosis, embolism, arteriovenous aneurysm and others which lead to nutritional disturbances. Spontaneous hemorrhage is surprisingly uncommon. It is observed most frequently after operative manipulations and particular caution must be exercised during direct attacks upon the vertebral bodies, the sacro-iliac joint and the lower medial aspect of the femur. Skin defects and vicious adhesions may be obviated by making surgical approaches through the natural anatomical fascial planes or through the most fleshy parts. Erysipelas and possible gas bacillus infection must be suspected and anticipated. These will rarely be overlooked if the wound is always inspected whenever the patient complains of pain or exhibits a temperature rise. Epithelialization and malignant degeneration of the sinus tract or the bone itself



Fig. 6. Female aged 5 years. Acute onset six weeks ago with involvement of the right pubis. Complicated by large abscess in Scarpa's triangle. Radical drainage and resection of destroyed portion of bone followed by rapid healing and recovery.

in old recalcitrant cases does occur often enough to urge the necessity of radical excision and the establishment of direct drainage even in apparently innocent nondisabling or symptomless cases.

Table 1. *Anatomical Distribution of 1484 Cases of Pyogenic Osteomyelitis*

| Males, 1130 | | Females, 441 |
|-----------------------|------|--------------|
| Lower extremity | 1064 | 73% |
| Upper extremity | 220 | 14% |
| Spine and pelvis | 138 | 9% |
| Head bones | 42 | 2% |
| Chest wall | 20 | 1% |
| Unusual localizations | 595 | 40% |

The total number of cases in this series is actually 1571, but localization could only be determined in 1484 instances. Unusual anatomical sites are the following: bones of the upper extremity, bones of the foot, spine, pelvis, bones of the head, chest wall, fibula and patella.

A knowledge of the unusual anatomical localizations of pyogenic osteomyelitis is of the utmost importance to the clinician. Almost half of this entire series may be classified as such. I shall limit the remainder of this paper to spine and pelvic lesions. They have this much in common: relation to important organs and tissues, their depth and inaccessibility and the resultant diagnostic and therapeutic problems they provoke. A slight primary lesion here is easily overlooked or subordinated to the more extensive secondary adjacent structural involvement, or is masked by the overwhelming constitu-

tional reaction or distantly referred symptoms. In general, pyogenic osteomyelitis of the spine and pelvis is still a relatively unknown and ill defined clinical entity.

Table 2. Statistical Analysis of Spine and Pelvic Series

| | Site | | | | |
|-------------------|----------|-------------|-------|---------|-------|
| | Spine | Sacro-iliac | Ilium | Ischium | Pubis |
| Cases | 58 | 22 | 28 | 21 | 9 |
| Males | 44 | 15 | 19 | 13 | 6 |
| Females | 14 | 7 | 9 | 8 | 3 |
| Average age | 29 years | 19 | 16 | 11 | 15 |
| Associated trauma | 19 | 10 | 7 | 10 | 5 |
| Onset: Acute | 32 | 10 | 19 | 9 | 4 |
| Subacute | | 6 | 4 | 8 | 1 |
| Chronic | 15 | 4 | 5 | 2 | 4 |
| Bacteriology: | | | | | |
| Staphylococcus | 31 | 4 | 9 | 9 | 2 |
| Streptococcus | 7 | | 1 | | |
| Mixed | 3 | | 3 | 1 | |
| Blood culture | | | | | |
| positive | 6 | 1 | 4 | 3 | |
| Mortality rate | 24% | 13% | 7% | 19% | 22% |

The number of cases in the individual situations is impressive, and emphasizes the relative frequency of these lesions. They are certainly not rare as we have been taught in the past. The ratio of males to females is about 2:1 in the pelvic sites as compared to 3:1 in the general sex incidence of the disease. The age range is wide but the average steadily increases as the spinal region is approached. The duration of these lesions was from two to ten years and averaged 6 years. The great majority of these sites were the original primary foci of the infection, although a few followed compound fracture, operation or were secondary metastatic from some other focus.

From a clinical viewpoint it must be emphasized that we are dealing with a diffuse type of lesion because sooner or later in the evolution of the lesion diffusion results on the basis of the spongy character of the bone, the peculiarities of the blood supply and because osteomyelitis always causes reactive tissue responses at a distance in the affected bone. However, during the growth periods more localized types are to be seen due to the natural developmental structural limitations and the vulnerability of the more rapidly growing regions. So the opposite obtains in this situation as compared to that of the long bones where diffuse lesions are more common in children. Therefore we find that the bodies of the vertebrae are almost always the seat of the infection and the smaller posterior processes are much less frequently involved than the older literature states. Similarly in the pelvis an entire bony component or even the entire half of the pelvic ring may be destroyed. The intervertebral disk is usually sooner or later involved in the inflammatory process, and is clearly the primary focus in some instances. Sequestration is as common here as in other localizations but is of necessity not so massive and therefore as prominent a feature as in the long bones. The lesion is primarily destructive but the early vigorous productive changes act as a natural check upon the spine which combined with the immediate recumbency

assumed by the patient prevents deforming gibbous formation in most instances of this type of spondylitis as compared with the almost inevitable deformity which occurs in tuberculosis. In this series gibbosity was noted in only about 20 per cent of the cases. Deformity is likewise an uncommon feature of pelvic osteomyelitis due chiefly to the more widespread diffusion of static stresses and the peculiar structure of the bones. In all eight instances of lumbosacral involvement the disease spread to one or more sacroiliac joints.

Abscess formation is common and remarkable for the tendency to migrate from the original sites due to gravital and anatomical influences. These follow the paths of least resistance which are in the spine the ligamentous and muscular attachments with their fascial sheaths and planes. The slowly developing tuberculous abscesses represent this migration classically but the rapidly forming large quantities of pus that arise even from insignificant initial spinal foci may break through barriers and wander in the most bizarre fashion and lend further difficulties to diagnosis and retracing of sinuses to their original sites. Injection of these sinuses with any radio-opaque solution furnishes the key to the solution in most cases. Any sinus in the region of the spine or pelvis should call attention to these skeletal structures as the possible sources of the trouble. Careful radiologic studies must always be persistently carried out of the entire spine and pelvis.

The three main routes for abscesses originating in the bodies of the vertebrae are anterior into the mediastinum or retroperitoneally depending upon the region involved, posteriorly into the dura or externally into the muscles of the back, and laterally between the bodies and the transverse processes. In the lumbar and low dorsal region invasion of the psoas sheath with its subsequent diagnostically significant contracture or spasm usually occurs. Occasionally a paravertebral abscess formation results as is more often noted in tuberculous infection, especially in the upper dorsal region. In the cervical region a typical retropharyngeal collection presents. In any segmental region abscess formation following involvement of the posterior processes usually point externally. These abscesses with their attendant adhesions and infiltrations often give rise to confusing neurotic symptoms.

Similarly pelvic abscesses may extend within the pelvis or externally. Those originating above the iliopectineal line or in the

Table 3. *Segmental Localization in the Spine*

| | Vertebral Body | Posterior Arch | Combined |
|-------------|----------------|----------------|----------|
| Cervical | 2 | 1 | 2 |
| Dorsal | 12 | 2 | 1 |
| Dorsolumbar | 4 | | |
| Lumbar | 16 | 2 | 4 |
| Lumbosacral | 8 | | |
| Sacral | 2 | | |
| Coccygeal | 1 | | |

The majority of lesions are in the lower dorsal and lumbar region probably due to larger size of the bones, peculiarities of the blood supply and the inevitable predisposition to static strains and unguarded position toward injury. Sex is of no importance in the segmental distribution as was emphasized in the older literature. In practically every instance more than one segment was involved.

false pelvis will sooner or later perforate the wing of the ilium. Frequently these will form great cysterns of pus in which sequestra are found on the medial surface of the wing of the ilium without giving much clinical evidence of the enormity of the lesion. Those abscesses arising from the true pelvis usually migrate anteriorly into Scarpa's triangle when the focus is the pubis, or into the ischiorectal fossa, perineum or the fascial compartments of the thigh from ischial localizations. Occasionally the lower bowel is perforated, or a true intrapelvic abscess forms. Bizarre routes are favored here also by the natural bony contours and foramina such as the greater and lesser sciatic notches and the obturator foramen.

Errors in diagnosis are most frequently made in the acute forms of the disease particularly in pyogenic spondylitis as is exemplified by the following preadmission diagnoses that were made in this series, viz.: Actinomycosis, tuberculosis, perinephritic abscess, appendicitis, back strain, arthritis, empyema, meningitis, typhoid fever, pelvic inflammation, sciatica and pneumonia. Only four were correctly appraised two of which were correctly interpreted by the patients themselves as metastatic lesions. The subacute and chronic forms have only been recently appreciated and simulate tuberculous lesions very closely. No doubt many cases diagnosed as such were pyogenic in origin and confuse the statistics of tuberculosis of the spine as did the older cures for Perthes' disease which were thought to be tuberculous disease of the hip in bygone days. Inaccuracy in the diagnosis of tuberculosis of the bones and joints in general finds company in this situation. Two things stand out in the history of pyogenic spondylitis: the presence of spontaneous and provoked localized pain and the objectively elicited pressure tenderness which is usually sharply localized to the area involved. Pressure tenderness may be so strikingly localized to a small area that a minute digital examination

is often necessary to detect it. External abscess and fluctuation is not so common or characteristic as induration and infiltration which may be very slight. Aspiration into the depths of the back may yield pus. The roentgenographic changes are as late in their appearance here as elsewhere in bone infection but sometimes a paravertebral soft tissue edematous shadow may be noted. A knowledge of the lesion is most essential to a possible correct early diagnosis of this interesting disease.

The pitfalls in the diagnosis of pelvic foci though more circumscribed are none the less formidable. The chief differential conditions which must be ruled out are pelvic inflammations or even lower abdominal lesions and more especially hip disease. Spontaneous and provoked pain is more diffuse and indefinite but careful examination will locate tender areas. Compression of the iliac crests may be useful in this respect. Rectal examination will reveal abscess formation tenderness or areas of induration or infiltration. Motions of the hip call forth protective fixation of the joint due to the enormous attachments of the pelvi-femoral musculature and ligaments and their anatomical arrangement. It will be noted that the hip is usually held in a position that will encourage relaxation of those muscular and ligamentous attachments at the site of involvement. The usual position of rest for the hip joint when it is actually involved is that of flexion, adduction and internal rotation or abduction. In other focal lesions of the pelvis this does not obtain and we find almost characteristically assumed attitudes of the joint with accompanying limitations of motion that would put painful producing tensions upon specific muscular units. In ischial lesions the hip is held in flexion and external rotation to relax the short external rotators. Usually with iliac lesions the abducted position suffices with some degree of flexion. When the pubis is affected flexion and adduction and slight internal rotation serves to relax the massive adductor apparatus. When the developmental factors are considered with all the bones of the pelvis sharing equally in the formation of the hip socket the concentration of symptoms toward the hip is readily appreciated. A systematic examination of the hip will in the majority of instances exclude it. Edema of the labia majora on the affected side is almost pathognomonic of pelvic osteomyelitis and may go on to abscess formation.

Here too the roentgen changes are notoriously slow in their appearance. In one

instance of ischial involvement in which serial examinations were made at weekly intervals it required six weeks from the time of onset before definite bony pathology could be detected and this in spite of the fact that a clinical diagnosis had been made and the bone in question put under intense scrutiny at each examination. Occasionally abscess shadows may make their appearance radiologically in this situation. This is most typically seen as an obscuring of the obturator foramen in ischial foci.

The prognosis in all acute instances is grave chiefly because they are undiagnosed and because of the serious complications encountered. In spinal lesions the mortality rate used to be about 50 to 65 per cent. It is remarkable that in this series the mortality in those cases with the gravest central nervous system complications was only 60 per cent. One young adult with a purulent meningitis following operation for lumbar drainage healed spontaneously.

In the treatment, abscess formation has been the guiding factor in the indication for surgical drainage. Some types of non-suppurative subacute and chronic cases require nothing more than general hygienic measures and recumbency followed by mechanical support for the back during the initial period of weight bearing. The same holds true though to a lesser degree for similar pelvic forms of the disease. During the acute stages of the condition often all that is permissible in the better judgment of the surgeon is to attempt adequate evacuation of the soft tissue abscess. However, in the more chronic stages or whenever the patient's general condition allows, the more radical procedures will effect a permanent cure, particularly in the pelvic localizations which are more accessible and lend themselves nicely to the application of the most effective radical principles of treatment, that of total eradication of the diseased area. This cannot be practically applied to the spine for the more obvious reasons of its important static functions in supporting the body and because of the dangers of uncontrollable hemorrhage especially in the lumbar region where so many large systems of veins are present. However, wherever feasible the author does cautiously curette the bony focus. It is important to evacuate promptly all other purulent foci that may be present or arise during the course of the disease. These sites are prone to give rise to multiple soft tissue abscesses which seem to serve the purposes of vaccination when they are not too extensive

and the prognosis in these cases has been observed to be better. The primary focus or foci must be especially eradicated. Meningeal symptoms may indicate exploratory laminectomy and even subdural drainage, when the more usual extradural abscess is not in evidence.

The retropharyngeal abscess is reached through the lateral triangle of the neck in the neutral zone between the hyoid and cricoid structures. The prevertebral and mediastinal abscesses can be evacuated by a costotransversectomy. Psoas collections are approached through a Royle type of incision along the external border of the scarospinalis muscle by which the vertebral bodies are reached laterally under the transverse processes. When a psoas abscess has gravitated down toward the pelvic brim and can be palpated through the abdominal wall it can easily be drained along the iliac crest in the angle between the iliacus and psoas muscles. All presacral abscesses can be approached either from above through Petit's triangle or more dependently and adequately by the more direct route of partial or total sacro-iliac resection. In all of these situations it is essential that all ramifying sinus tracts and muscle or fascial pouches encountered are thoroughly dealt with.

Table 4. *Tabulation of Treatment*

| | Spine | Sacro-iliac | Ilium | Ischium | Pubis |
|----------------------|-------|-------------|-------|---------|-------|
| Bone attacked | 12 | 11 | 7 | 3 | 6 |
| Soft tissue drainage | 21 | 11 | 13 | 9 | 2 |
| Spontaneous drainage | 1 | | | | |
| Mechanical support | | | 2 | | |
| Radiation | | | 1 | | |
| No treatment | 16 | | | | |

The essential features of the technic in the treatment of the pelvic lesions is that they are principally partial or total subperiosteal resections of the affected parts. The sacro-iliac joint resection is accomplished through a Smith-Peterson type of incision and has already been described by the writer in a recent paper. Any abscess that may be present is evacuated by blunt dissection through the substance of the psoas muscle. The ischium can be entirely removed through a posterior incision after the gluteus maximus muscle and the sciatic nerve have been laterally retracted. This approach is anatomical, adequate and obviates the almost inevitable sinus formation that follows attempts to reach this region by perineal incisions. The wing of the ilium is easily exposed by a Sprengle type of incision along the crest and downwards anteriorly. The dissection is extensive and somewhat shocking to the patient unless the condition has

been built up to a considerable degree. This holds true for all these procedures. The pubic lesions are drained anteriorly.

CONCLUSIONS

The writer has discussed the broader aspects of unusual osteomyelitis in order to emphasize the many variable factors that are involved. These factors may be almost inseparably interrelated or appear singly in a given instance of the disease, but a systematic discussion has been attempted in an effort to clarify the situation for the general practitioner. The diagnosis and treatment of even the typical case of pyogenic osteomyelitis is simplified upon the basis of these facts. It can be readily appreciated that all infection in bone is unusual and taxes our ingenuity to the utmost for its proper evaluation.

It is my chief aim in the review of the spinal and pelvic localizations to show that these lesions are not as uncommon as we have been led to believe. Because of the high attendant mortality rate of spinal lesions, one is justified in making an exploratory incision for drainage upon adequate provocation especially in the more acute profound types of the disease. A dry tap will often yield copious pus within a few days of the attempt if the wound is left open.

The curability of pelvic lesions has been shown to be practically accomplished by bold partial or total resections of the affected parts.

Finally, the principles of the Orr treatment providing for adequate drainage and adequate rest and protection of the parts must be observed in all cases of pyogenic osteomyelitis to obtain the best results and to further the best interests of the patient no matter what the technical details of the procedure might be.

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INTERRELATIONSHIPS AMONG URINARY, PITUITARY AND PLACENTAL GONADOTROPIC FACTORS

J. B. Collip, Montreal (Journal A. M. A., Feb. 16, 1935), confines his discussion to the known estrogenic and gonadotropic factors of the pituitary, placenta and urine. A great mass of factual evidence bearing on these active principles has been accumulating within the past few years and indeed is still being added to rapidly month by month. Proved facts must be accepted, but an adequate and totally satisfactory correlation of these facts is quite impossible at this time. The author hopes only to present a point of view that seems the most satisfactory explanation of the known facts. He considers the active principles, the estrogenic substances without gonadotropic effect, the gonadotropic principles and the influence of the gonadotropic hormones on the ovary.

BLADDER CATHETERIZATION

ITS BENEFITS AND DANGERS IN PROSTATIC, POSTOPERATIVE, POSTPARTUM AND NEUROGENIC OBSTRUCTIONS

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INFECTION

In obstructed bladders catheterization should be considered as surgical drainage, not only of retained urine *but of infection as well*. The bladder contracts down about its "drain" to a greater extent than does any other drained viscus and, in this contracted state moreover, it maintains or attempts to maintain active function in expelling or assisting in the expulsion of urine. From the standpoint of the management of infection it is wrong to bring about this contraction change plus the attendant catheter trauma and thereafter refuse it perfectly free and continuous drainage. It is not of great importance to offer the bladder continuous urinary flow unless the urine be infected and under increased tension. It is important to lower the tension of any infected cavity and to provide it with uninterrupted drainage. Intermittent catheterization and poorly borne retention urethral catheters provide interrupted drainage.

Furthermore, the obstructed urinary bladder is unfortunate in that its muscle wall has often become markedly thickened or compensated in overcoming an obstruction, and each catheter emptying and filling, simply by the physical stimulation, further strengthens the subsequent contraction of this abnormally thick wall¹ and adds self-traumatization, by terminal spasm, to the trauma of the catheter. In this infected bladder with raised intracystic pressure, the traumatized blood vessels and the lymphatic spaces rapidly receive and disseminate the organisms which are multiplying in an excellent stagnant culture medium while awaiting another emptying by the catheter. A vicious circle! In a few instances only, the spread of the infection is directly up the ureteral lumen to the kidney (regurgitation) and thence to the blood stream. A kidney already damaged by back pressure can stand but little of this added bacterial damage before the patient succumbs to a kidney death.

Prevention of such secondary toxic damage therefore requires continued free drainage after once instituted by catheter, until the bladder is able to empty itself. If a catheter is poorly borne and the subsequent proposed surgery warrants it, immediate suprapubic drainage is preferred.

Read at the 77th Annual Meeting of the Missouri State Medical Association, St. Joseph, May 7-10, 1934.

erable to imperfect retention catheter drainage. Under such conditions with a patient in poor general health, suprapubic drainage is very liable to be less dangerous than the continued renal damage and general toxicity of poor urethral drainage.

In the past and to a lessening degree in the present, a single catheterization in obstruction was thought to bring about uremia by the sudden release of kidney back pressure. It was thought to be particularly dangerous to remove an uninfected residual urine by catheter. It now seems improbable that any kidney can be subjected to "sudden release of back pressure damage." On the other hand, it is probable that when precatheterization back pressure damage of the kidney already exists (as told by the blood nonprotein-nitrogen and phenolsulphonephthalein test) it is dangerous to add any bacterial or toxic damage to the kidney.

A retention catheter is a foreign body and institutes "foreign body" reaction of urethra and bladder. We have seen pus exuded alongside of a retention catheter even if scrupulously kept. The urethritis and cystitis thus caused is a subsequent dangerous operative field for second stage, and *particularly for a later, one-stage suprapubic prostatectomy*. The perineal approach, requiring less urethral traumatization for prostatic removal, is less dangerous from the standpoint of manipulatory dissemination of infection, particularly of embolic pneumonia,² than the suprapubic method when the surgery is done in the presence of such a "foreign body" type of urethritis and cystitis.

Urinary retention occurs when the obstruction exceeds the strength of the expulsive force of the bladder wall. An overdistended wall is thinned and temporarily relatively anesthetic due to a raised and long continued pressure. Catheterization, in emptying the bladder contracts and so thickens the wall and, in certain acute retentions, may raise the expulsive force over the blocking power of the prostatic obstruction. We know that there are many types of hypertrophied prostates, not only in shape but also in the rapidity of the enlargement. A slowly progressive obstruction causes an increased³ thickening of the bladder wall in nature's effort to overcome it while a sudden obstruction (acute overdistention) often occurs with a bladder wall only mildly hypertrophied and, in such instances, a single catheterization may reestablish urination.

I feel very definitely that it is safe to empty any markedly obstructed bladder once, whether it be infected or not infected, either suprapubically or by catheter, but the catheterization cannot be repeated, at least very often, in a majority of cases for the reasons given before. We know that exceptions do exist but it is ex-

ceedingly dangerous for the patient to try for the exception.

BLADDER DECOMPRESSION

An overdistended bladder, excepting one of acute onset, has a lower intracystic pressure than one which is half full or thereabouts. It is relatively anesthetic from long back pressure and thin walled when full, less anesthetic and thicker walled when partially emptied. Furthermore, in the process of emptying, excepting when done by the drip method (that is, a ureteral catheter used as a urethral catheter⁴) it is extremely difficult in all cases to determine how full the bladder is and often, in the process of emptying, we find to our surprise that it is already empty.

Great benefits have been derived from the clinical application of the ideas of gradual decompression because it affords continuous (surgical) drainage and oftentimes offers associated bladder irrigation which is far better than intermittent catheterization with its sepsis and, furthermore, it corrects back pressure kidney damage before operation. Its dangers lie in insisting on urethral catheter drainage in all cases thereby precipitating an infection which is not only dangerous surgically but which at times so whips up bladder contraction that the catheter is poorly borne, and drainage of infection is incomplete. In such cases, immediate and continuously satisfactory suprapubic drainage would be preferable and would also prevent the "foreign body" (catheter) urethritis and cystitis with possible secondary prostate, seminal vesicle and even epididymal infection.

As far as I can determine by bladder pressure studies,⁵ an empty bladder with its walls at rest has the only constant intracystic pressure. Any bladder content precipitates a variable intracystic pressure. Bladder strength, and consequently intracystic pressure, varies with the duration and type of obstruction; amount of residual urine; absence or the presence of infection and the degree thereof; age, general condition and type (physical and mental) of patient, etc. We may have a very low intracystic pressure due to marked bladder wall back pressure damage, or a very high pressure often increased by a previous, single catheterization. One rule for decompression will not suffice for all bladders. No counter pressure by gravity can perfectly meet each bladder wall spasm or relaxation except by estimate of the amount of fluid in the bladder and, obviously, intracystic pressure in all bladder's is not constant with given amounts of fluid.

In any analysis it seems improbable that we can decompress a bladder in the usually accepted meaning, that is, to decrease the capacity gradually and with it the intracystic pressure. In

my opinion, back of this stands the rule, with but few exceptions: One abrupt emptying of the bladder with subsequent free and continuous drainage is without danger.

THERAPEUTIC OR DIAGNOSTIC CATHETERIZATION

In the absence of a residual urine or of a virulent urethral infection there is little danger of infection by a single catheterization. Why then the fear of causing an infection by catheterization for diagnostic purposes? It is partially a "hark-back" to the clinical bacteriology of early days. Rarely, however, there is an exacerbation of a low grade cystitis or urethritis by trauma or by carrying urethral organisms to an unrecognized residual urine or to the alteration in bladder function caused by the emptying of a bladder which has long been partially filled. In the male, urethral reactions due to interference with the local tissue resistance of a low grade urethritis and so causing spread of the infection to epididymis, prostate, seminal vesicles or bladder, often occur. Vasectomy is a very desirable precatheterization procedure if the age of the patient and the probable duration of the illness warrant it. In the presence of a known residual urine, catheterization should be deferred until the surgeon is ready for any follow-up treatment necessary, usually hospitalization. Otherwise, a single catheterization is harmless as a rule.

In the male, methylene blue stain of the second glass in a voided, two glass urine test, freshly made, but one which has been incubated in the bladder for from two to four hours, is satisfactory to determine the presence or absence of infected urine, but in the female a catheterized specimen is essential and little fear should attend the obtaining of such a specimen. If the infection in a particular case which suggests bladder infection alone, the first catheterization, very often at least, should immediately follow the emptying of the bladder to determine the presence or absence of a residual urine, the most frequent cause of continuing a cystitis in the female with cystocele. In this connection I feel that it is important to urge an understanding of the classification of cystoceles.⁵ If the residual urine is not sought for at the first catheterization, occasionally catheterization will temporarily dispel the residual by catheter compensation of the bladder wall and so cloud the clinical opinion.

Treatment of pyelonephritis by bladder irrigation will in some cases be found beneficial. In others it but adds chemical and mechanical irritation. In some instances the bladder is the focus of reinfection as well as of absorption. The idea that a bladder infection will not cause fever is erroneous. It is true that, generally, bladder absorption is far less than kidney ab-

sorption. In cystitis, however, lymphatic spaces form which empty into the pericystic lymphatic channels; and there is also absorption and dissemination of the organisms by way of the blood vessels within the inflamed mucosa. The organisms quite frequently invade via the ureter, either lumen or periureteral lymphatics. The bladder often is a greater focus of absorption than teeth, tonsils, etc., and its treatment by weak irrigation is well worth a trial, particularly in ascending infection—but by no means in this type only.

POSTOPERATIVE RETENTION

Postoperative retention is associated with normal bladder sensation but low intrasystolic pressure. There is an inhibition of bladder contraction and oftentimes an overdistention occurs a few hours postoperatively which thins the bladder wall and further reduces the expulsive force. A single catheterization with complete emptying, in many such instances, will so contract the wall as to return it to normal expulsive force. In a few instances the reflex nerve stimulation causing the inhibition remains in play and several catheterizations are necessary. However, postoperative retentions are in a large majority transient and so intermittent catheterization is as a rule beneficial with no danger of inciting cystitis.

POSTPARTUM RETENTION

Postpartum retention is associated with *diminished sensation and a high intracystic pressure*; a perfect combination for disseminating infection by means of intermittent catheterization. Unfortunately for our clinical judgment, a postoperative type of retention may be associated which would be secondary to the trauma of delivery or to episiotomy. For this reason, a single catheterization after delivery may suffice and so lead us into danger if the next case is a pure postpartum type of retention.

Postpartum retention may disappear after two or three days, or two or three weeks. It should be treated like a hypertrophied prostatic retention, that is, complete urinary and infection drainage until normal function is reestablished. Whenever the catheter is removed, a test for residual urine should be made within six hours and the catheter replaced if a residual of one or two ounces or more remains. In these cases bladder dysfunction due to cystocele or injury of the trigonal muscle may make a small residual, ten to thirty cubic centimeters, permanent, in which case the catheter may be erroneously blamed for the persistent cystitis. Retention catheter⁷ often causes a hyperplastic urethritis which may continue bladder irritability after the urine is free from organisms. Postpartum pyelonephritis often yields to proper bladder management. If it does not, the

primary cause of urinary stasis is usually found above the bladder.

NEUROGENIC AND TABETIC BLADDERS

Neurogenic bladders are those in which dysfunction is attributable to altered innervation. It is by no means true that all neurogenic bladders are atonic. In fact, a fair number are hypertonic. Oftentimes the term "tabetic bladder" is incorrectly used synonymously with "neurogenic bladder." A true tabetic and a spinal cord bladder due to spinal cord fracture, may each be flaccid but they will vary in function and prognosis and should have different treatment as to catheter management.⁹

For clinical application, particularly as to the benefits and dangers of catheterization in neurogenic bladders, we must reason in terms of basic bladder function which are: expulsive bladder wall force as against the resistant sphincter power. Perfect control, or retention, incontinence or any other dysuria is brought about by a normal balance or an imbalance established between expulsive bladder wall force and the resistant power of the sphincters. These two grossly component functional units have different musculature with different innervation. We can upset this balance through irritation or destruction of nerves or by injury to the muscle. We are at present interested in the nerves. Obviously, if we have a hyperirritability of the nerves to the expulsive force and leave those to the sphincter resistant power undamaged, urgency of urination, even to incontinence will result. On the other hand, should we reverse the condition, retention of urine would occur as surely as back of a huge prostatic hypertrophy. At times the nerve supply to both component functional parts, wall and sphincter, are similarly changed and we then have a problem for individual analysis.

When a normal bladder wall is obstructed through faulty innervation of the outlet, the same physiological principles as described under prostatic obstruction obtain; namely, it is unwise to catheterize unless full, free drainage of urine and infection is provided after catheterization. An atonic bladder of neurological origin compensates slowly and only partially to either retention or intermittent catheterization. For this reason an atonic or typically tabetic bladder may be catheterized with far less danger than a decompensated bladder back of a prostatic obstruction.

SPINAL CORD INJURY WITH URINARY RETENTION

Immediately following the injury we have a paralyzed bladder which lasts from hours to days according to location and severity of the injury. At this time the retention of urine is

under low pressure and after the bladder distends there will be an overflow; a paradoxical incontinence in that the bladder is never empty though the patient voids more or less continuously. Catheterization is not advisable as the residual urine almost surely invites infection and the bladder is atonic at that time. The second phase will be a less atonic bladder and, if we catheterized in the first phase we would then have a residual in an infected, traumatized and important physiological organ. Such an outlet obstruction may offer its resistance either actively or passively; that is, can't be pulled out of the way, or is spastic and so contracted in the way to the outflowing urine. Again depending on the location and degree of the injury we may next have a reflex bladder.

HIGH BACK INJURY

If the back injury is high (above the eleventh dorsal spinal segment) skin or deeper stimulation at or below the site of injury may reflexly stimulate the bladder to contraction and if at that time manual expression is applied over the bladder and the patient attempts to void he may be able to reduce his residual urine to a comfortable degree. The skin stimulation may be done by stroking. It may, however, be caused by the patient's contact with the bed, moving the legs or body, and so produce a reflex type of incontinence. Such bladders never completely empty but they are relatively atonic and anesthetic and do not require, and should not be, needlessly catheterized. If, in such an injury cystitis should develop with high fever, etc., and there is no external sphincter spasm, a retention urethral catheter usually is preferable, at least where there is hope of complete recovery. Otherwise, suprapubic drainage with a mushroom catheter should be used. External sphincter spasm often can be diagnosed by finding external rectal sphincter spasm.

LOW BACK INJURY

If the back injury be low (below the eleventh dorsal spinal segment) we may have the initial paralysis, and possibly are more likely to have an obstructing spastic external sphincter. Back of this sphincter is a bladder wall of normal innervation and again a bladder which, from a catheter standpoint, obeys the principles discussed under prostatic obstruction, the chief exception being that, if the sphincter is spastic by nerve irritation its spasm "chews" up on the retention catheter. Such involuntary external sphincter spasm causes unusual urethral catheter trauma. Vasectomy should be considered here. In this type of neurogenic bladder primary cystostomy is preferable to retention urethral catheter. The reflex bladder rarely occurs when the injury is very low, sacral or cau-

dal. In all bladder retentions secondary to spinal cord injuries it is wise to delay interference of any type until forced to it by sepsis, pain or kidney damage.

TYPE OF CATHETER

In the male with prostatic hypertrophy a No. 20 to No. 24 F. bicoude catheter is preferable. A metal catheter very rarely will be found necessary. In the female, a No. 12 to No. 15 F. metal catheter permits of the most rapid inflow and outflow of fluid. If withdrawn while fluid is being forced through it there is little danger of the eyes of the catheter causing mucosal trauma. Soft rubber catheters are preferable as retention urethral catheters.

SUMMARY

1. In prostatic obstruction intermittent catheterization is dangerous, particularly on the basis that, in the presence of a residual urine, an infection will be instituted or exacerbated and disseminated, chiefly to the detriment of a kidney oftentimes already damaged by back pressure.

2. A retention urethral catheter may be necessary: (1) Extremely poor surgical risk; (2) necessary delay in operation in cases of complete obstruction; (3) previous continued use of the catheter. A prostatic hypertrophy complicated by a catheter "foreign body" type of urethritis should never be subjected to a one-stage suprapubic prostatectomy.

3. Decompression of a bladder as we understand it clinically is impossible; and rather than having such an aim in mind when meeting with a large urinary retention, it is often preferable to empty the bladder completely once and for all time and thereafter afford this bladder free and continuous drainage of both infection and urine. Catheter versus surgical drainage is discussed.

4. A single diagnostic catheterization in females for determining the presence or absence of infection, or of a residual urine if it is suspected, is desirable and not liable to induce infection. Postpartum retention should not, in some instances, be catheterized repeatedly. Postoperative retention often and safely yields to intermittent catheterization.

5. The urinary bladder is definitely an organ of absorption. Its cleansing is a factor in treating some cases of pyelonephritis, particularly the ascending type.

6. Neurogenic bladders may have a hypertonic bladder wall (increased expulsive force) with normal, increased, or decreased sphincter tone (resistant power). Also, atonic or flaccid bladder wall (decreased expulsive force) may have relatively increased or decreased sphincter

tone (resistant power). Determination of existing bladder conditions in these regards; estimating the prognosis; diagnosing the degree, type and location of the nerve damage, and the presence or absence of infection, determine one of three treatments: (1) Expectant; (2) catheter; or (3) surgical drainage of retained urine.

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BIBLIOGRAPHY

1. Rose, D. K.: Changes in the Wall of the Bladder Secondary to Prostatic Obstruction, *Arch. Surg.* **25**:783-795 (October) 1932.
2. Thomas, G. J.; Exley, E. W., and O'Brien, W. A.: Causes of Death Following Treatment for Relief of Prostatic Obstruction, *J. Urol.* **15**:343, 1931.
3. Herbst, Robert H.: Urography as a Guide to Surgical Indications of Diverticula of Urinary Bladder, *J. A. M. A.* **102**:188-191 (January 20) 1934.
4. Scott, W. W.: Gradual Decompression of Bladder With Ureteral Catheter, *J. Urol.* **19**:81 (January) 1928.
5. VanDuzen, R. E.: Use of Cystoscope as Diagnosis and Treatment of Cystoceles, *Urol. & Cutan. Rev.* **36**:187-194 (March) 1934; VanDuzen, R. E., and Looney, W. W.: Further Study on the Trigone Muscle, *J. Urol.* **27**:129 (February) 1932.
6. Rose, D. K.: Determination of Bladder Pressure With the Cystometer, *J. A. M. A.* **88**:151-156 (January 15) 1927.
7. Rose, D. K., and Rollins, P. R.: Pyelonephritis in Pregnancy, *J. A. M. A.* **96**:235-240 (January 24) 1931.
8. Folsom, A. I.: Female Urethra, Clinical and Pathological Study, *J. A. M. A.* **97**:1345 (November 7) 1931.
9. Rose, D. K., and Deakin, Rogers: The Cystometric Diagnosis of Central Nervous System Syphilis, *Am. J. Syph.* **13**:371 (July) 1929.

THE MANAGEMENT OF HYPERTHYROIDISM

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Although hyperthyroidism was recognized as an entity early in the nineteenth century it was not until many years later that surgical measures were definitely proved to be of value. At first, progress in this field was very slow; later, under the leadership of a few surgeons, notably, C. H. Mayo, Halstead, Bartlett, Crile and Kocher, marked advances were made. With wider experience it became clear that the problem of reducing operative mortality lay not so much in the improvement of technic as in the further study of the disease itself, and in the control of the postoperative hyperthyroid crises.

Most of us feel that the general term hyperthyroidism includes two separate and distinct diseases; namely, exophthalmic goiter and toxic adenomata. However, occasionally the various signs and symptoms are so intermingled that a differential diagnosis is extremely difficult. In exophthalmic goiter we have a hyperthyroidism plus a dysthyroidism, while in the toxic adenomata we are dealing with a pure hyperthyroidism

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which can be reproduced experimentally by the administration of thyroid extract.

The cause of exophthalmic goiter is unknown. All evidence indicates that an intense stimulation of unknown source, operating probably through the sympathetic system or the blood and acting on the thyroid gland drives it to the point of hyperactivity.

The only known anatomic change characteristic of the disease is found in the thyroid gland, that is, diffuse hypertrophy and hyperplasia. We have ample clinical and scientific proof that the chain of symptoms in exophthalmic goiter is in part, if not solely, the result of over production of the secretion of the thyroid gland, since there is complete disappearance of the symptoms and the return of the basal metabolic rate to normal limits within two to six weeks following subtotal thyroidectomy. In a small proportion of patients there is a recurrence of symptoms with an elevation of the basal metabolic rate in from a few months to many years after operation. Almost always this elevation is associated with or follows enlargement of the remaining portion of the gland. After further resection the great majority of these patients again become free of symptoms and remain well permanently. Very occasionally there may be two or more recurrences with hypertrophy of the remaining portion of the thyroid gland and two or more operations may be required.

The incidence of recurrence of hyperthyroidism involves certainly not more than 5 per cent and probably less than 3 per cent of all the patients on whom conservative double resection of the thyroid gland has been performed.

It is on account of this tendency to recurrence in a small percentage of patients with exophthalmic goiter that many surgeons, in order to avoid recurrence of hyperthyroidism, have advocated an extremely radical operation. Certain surgeons have attempted to remove all but a vestige of the gland on either side. Others even have attempted to remove the entire gland, with the avowed purpose of producing hypothyroidism or myxedema. To my knowledge, there never have been any convincing data submitted to demonstrate that the results of the radical operation are better than those of the conservative resection. If a function of readjustment were not possessed by the remaining portion of the thyroid gland after operation, every surgeon would have to have supernatural powers to judge the exact

amount of tissue required by each patient; otherwise there would be a far greater number of patients with postoperative myxedema or with persistent hyperthyroidism.

The high proportion of patients who are entirely and permanently relieved of their symptoms by subtotal thyroidectomy, in which a varying amount of thyroid tissue is left, is sufficient clinical evidence to indicate that the remaining portion of the gland does regain its power of regulating its function to meet varying demands.

The contention that recurrence of exophthalmic goiter is wholly attributable to inadequate resection of the gland, and that its prevention can be accomplished by more radical resection, even to the point of the production of hypothyroidism, cannot be substantiated by the facts. We have seen two cases where myxedema followed subtotal thyroidectomy for exophthalmic goiter in which exophthalmic goiter subsequently recurred, and in one case a second operation was required. The only reasonable interpretation of the sequence of events in these cases is that as long as there is any viable thyroid tissue, even though incapable of producing sufficient thyroxin to meet the normal demands of the body, it is capable of regeneration under the proper stimulus even to the point of causing hyperthyroidism.

Any assumption that the most frequent cause of recurrence is due to inadequate surgery must wholly disregard the fact that there may be recurrence of the stimulus which caused the disease originally. Just what this is remains a matter of speculation. It cannot be denied, however, that there are predisposing etiologic factors, such as (1) emotional stresses resulting from shock, fright, worry, overwork and intense living, (2) infections, and (3) possibly the increased normal physiologic activities of adolescence, pregnancy, and so forth. Moreover, iodine deficiency or some constitutional nervous status may be predisposing factors. Certainly it is of prime importance in the prevention of recurrence that these factors be taken into consideration and eliminated as soon as possible.

We feel that the organization of cooperative management of patients with toxic goiter, whereby throughout the entire period of observation they are under the joint supervision of the internist and the surgeon has greatly reduced the mortality. Under this system of cooperative treatment the operative hazard can be more accurately esti-

mated; the patient who is a poor risk can be prepared more intelligently and complications can be more readily detected and efficiently dealt with. There are numerous recognizable factors in the patient's condition that influence the hazard of operation, such as age, duration of the disease, severity of the hyperthyroidism, as measured by the height of the basal metabolic rate, general debility, the degree of myocardial and hepatic insufficiency and the presence of associated disease.

On the basis of these potential dangers it is possible to gauge with a reasonable degree of accuracy the surgical hazard of the individual patient with goiter.

In attempting to estimate the operative risk it is always important to consider two additional surgical hazards; first, postoperative crises in acutely toxic conditions; second, respiratory infections in greatly weakened individuals. General debility occurs in two distinct groups; first, when weakness is the result of a recent severe crisis; second, when a long standing hyperthyroidism has produced visceral degenerative changes. The size of the gland bears no definite relation to the severity of the hyperthyroidism; frequently the smallest gland may cause the most severe toxemia, and vice versa. A good index of the activity of the gland is its vascularity, as manifested by large palpable arteries, thrills and bruits.

In most cases of hyperthyroidism associated with pregnancy the disease responds to treatment as readily as if the patient were not pregnant. In untreated hyperthyroidism, however, pregnancy is a serious complication. About one sixth of the patients with exophthalmic goiter and one half with hyperfunctioning adenomata become worse during pregnancy.

We have found that by proper preparation, a partial thyroidectomy can be performed and thus enable the pregnant woman to carry through pregnancy with a reasonable expectancy of her health and a normal living child. We have prepared and operated on most of these cases just as if they were not pregnant; except in certain cases in the later months of pregnancy that have shown a nearly complete remission of symptoms within two weeks after the institution of treatment with iodine.

We have observed a moderate number of these patients and none of them had myxedema following partial thyroidectomy; however, we did not remove as much thyroid as

we would in a similar case that was not pregnant.

There can be no standardization of the preoperative preparation of those suffering with hyperthyroidism except as to the fundamental principles involved. The method must be adapted to the individual case. Obviously, the more toxic the patient's condition the greater care and time needed for preparation. Experience alone can dictate the time for operation and the type to be done.

The introduction of compound tincture of iodine in the preoperative preparation of patients with exophthalmic goiter is the most momentous single advance in the surgical treatment of diseases of the thyroid since the advent of aseptic surgery. Certainly, no one who has practiced in this field during both the preiodine and iodine periods of treatment, can possibly entertain the slightest doubt of the influence of iodine. In the case of the toxic adenomata, iodine seldom causes the marked improvement seen in exophthalmic goiter. We give it in smaller doses and if there is no definite improvement after one week the iodine is discontinued.

In exophthalmic goiter, the administration of iodine has a pronounced effect on the pathological changes in the gland and on the course of the disease itself, as evidenced particularly by the improvement in the symptoms and the appearance of the patient, by the lowering of the basal metabolic rate and by the absence of severe postoperative hyperthyroid reactions. This has resulted in a smoother convalescence, in a tremendous reduction in the need for ligations and an operation performed in stages, and finally in a marked decrease in the operative mortality.

Compound tincture of iodine will not cure exophthalmic goiter, and its indiscriminate use is both dangerous and unscientific. It should be used only as a preoperative and postoperative adjunct and in hyperthyroid crises.

When iodine is administered over a long period with the idea of effecting a cure, the ideal time for operation will have passed when the patient is finally referred to the surgeon, because the initial response to the iodine is seldom if ever duplicated.

Effective rest is a necessity in the preoperative preparatory régime. Impatient ambitious people are inclined to rest poorly, and complete inactivity is at times out of the question for many of these patients; but we attempt to approach complete rest as nearly

as possible during the early period of medical management. However, when their condition warrants it they are allowed to have the bed rolled in the solarium for an hour or so daily, and some patients are allowed to perform some simple work with their hands that involves no fine motion and no eye strain.

The occupational therapists have been of assistance in developing this type of work which must be done strictly for pleasure; and great care must be taken that these patients do not become fatigued.

Routinely these patients are put to bed with an ice bag over the pericardium. They receive between four and five thousand calories of food daily and between three and four quarts of fluid during each twenty-four hours. It is advisable to administer a sedative and we prefer one of the barbitol preparations, such as pentobarbital sodium or luminal, given in doses of $\frac{1}{2}$ to $1\frac{1}{2}$ grains three times a day and at bedtime. Usually 10 drops of compound tincture of iodine is given in milk or cocoa three times a day between meals.

Within a few days after the iodine treatment is started the restlessness and emotional instability lessens and a general improvement is noticeable. As a rule the maximum benefit is obtained within ten to twenty-one days. Many of these patients will gain between three to seven pounds the first week of treatment. This improvement is only temporary for if the drug is continued the pulse and metabolism gradually rise after the maximum drop and the symptoms increase again. Their progress is checked with frequent basal metabolic estimations.

Not infrequently patients with severe hyperthyroidism are operated on before they have been adequately prepared. This error is sometimes accounted for by an unfounded belief that the effect of iodine on the disease is transient and that to obtain its maximal benefit the operation must be performed within the limited time of from two to three weeks. Although from eight to twelve days is sufficient time for the preparation of most patients, a considerably longer period is required by others, particularly those who on admission are greatly prostrated from acute severe hyperthyroidism. To operate on such patients before they have at least partially regained their weight and strength may prove disastrous, while a delay of three or four weeks or longer will insure an easy convalescence. Adequate rest does not necessarily imply continuous confinement to

bed up to the time of operation; this is debilitating and when a patient is thus confined he becomes a fit subject for the development of postoperative pulmonary complications. When strict confinement has been necessary, as it is for patients with cardiac decompensation, operation should always be delayed until the patient has been up and about a part of each day and until he has regained his strength. In my experience, the observance of this rule has been of inestimable value.

In preparing patients with obvious cardiac disease one is frequently tempted to administer digitalis in the hope of quieting the heart and increasing the reserve. Following Plummer's suggestion in 1923, digitalis has been given only occasionally to patients with cardiac decompensation when rest alone has failed to restore the compensation. The results have fully justified this policy. The operative mortality has been lower and unquestionably convalescence has been smoother.

Patients with degenerative changes in the liver, as evidenced by the phenoltetrachlorophthalein retention test and those with diabetes mellitus, may have the glycogen reserve materially increased by preoperative preparation; in the first group, by the intravenous injection of 10 per cent dextrose in sodium chloride solution; and in the second, by a diet high in calories and rich in carbohydrates, supplemented by adequate insulin to make possible its utilization.

There is a group of late cases, with a moderate or relatively high degree of hyperthyroidism, that are not markedly benefited by the administration of iodine. These patients are generally considered poor operative risks and should have all the preparatory measures continued as long as there is any definite improvement as manifested either by a reduction of the intensity of the hyperthyroidism or by a gain in weight or general strength. It is in this group that a graded or multiple stage operation is indicated. When the treatment with iodine fails to influence the course of the disease ligation is equally ineffective. In doubtful risks, ligation is occasionally performed with the idea of testing their tolerance prior to performing a resection of one lobe. The operative risk of lobectomy is definitely less than that of subtotal thyroidectomy, for the surgical trauma and chance of technical error attendant on the former is just half that of the latter.

The two stage resection is also indicated

where the goiter is very large and firm and has compressed the trachea, for resection of both lobes might be followed by a sudden collapse of the tracheal walls. Still another indication for the two stage operation is in cases where excessive time has been consumed during the resection of the first lobe due to technical difficulties, or where there has been undue loss of blood.

The night before operation, two additional doses of compound tincture of iodine are given at 8 and 9 p. m. and $1\frac{1}{2}$ grains of pentabarbital sodium. One hour before going to the operating room 3 to 6 grains of pentabarbital sodium are given by mouth and a half hour before the operation $\frac{1}{6}$ to $\frac{1}{4}$ grain of morphia is given hypodermically.

The choice and the manner of administering the anesthetic are of prime consideration in the operative treatment of the patient, particularly the poor risk. It is not unusual for enthusiasts to advocate some particular inhalation anesthetic as being peculiarly suitable for operation on patients with goiter. From my experience I am in thorough accord with the teachings of Crile, that the employment of prolonged inhalation anesthesia is deleterious to the handicapped patient. Local anesthesia alone is not essential, and moreover it cannot be administered successfully to many patients. I have found that infiltration with procaine hydrochloride, supplemented by ethylene-oxygen or nitrous-oxide-oxygen, is the most satisfactory method of anesthesia. Under this method the average duration of administration of gas is from ten to fifteen minutes. For patients with obstructive dyspnea local anesthesia is definitely indicated.

In children with hyperthyroidism ethylene-oxygen or ether gives the most satisfactory results.

While I am on the subject of hyperthyroidism in children, I would like to emphasize the importance of leaving about twice as much thyroid as one would do in an adult showing the same symptoms, for one never knows just exactly the demands that may be made on the thyroid in the future; and I would far rather see a child with a persistent mild case of hyperthyroidism following operation than to have myxedema as a complication.

The essential technical features of the operation for goiter consist (1) in the removal of the excessive thyroid tissue with the minimum loss of blood and the least possible trauma to the contiguous structures;

(2) the preservation of sufficient gland tissue to maintain the basal metabolism within normal limits, and (3) strict asepsis. In operating on the patient who is a poor risk the avoidance of technical errors is of paramount importance, for the margin of safety is often very narrow and any slight error might prove to be the deciding factor in an unfortunate outcome. With the skilled operator there are only two accidents that are worthy of note: namely, injury of the recurrent laryngeal nerve and postoperative hemorrhage. Both of these can only be avoided by extreme care of details. If the surgeon is the least uncertain as to the effectiveness of hemostasis, he should ligate one or both of the inferior thyroid arteries at a point proximal to their entrance into the gland, or pack the cavity and leave the wound open. The preservation of the posterior mesial portion of each lobe and the avoidance of exposure of the lateral wall of the trachea will greatly minimize the chance of injury to the laryngeal nerve and parathyroids. After resection of the first lobe it is desirable to have the patient talk in order to be sure of the functional integrity of the nerve, for in case of injury one must be doubly careful not to injure the opposite nerve. If there has been an injury to the nerve on a patient that has been considered a poor risk, this should be a definite indication to postpone the resection of the second until a later date. In our experience, tetany has been extremely rare; in fact we have only seen one transitory case in the last five years and this responded quickly to the administration of calcium lactate.

Since the symptoms of toxicity often occur rapidly after the withdrawal of iodine it is important that the iodine be continued during the postoperative period, and this can be done by adding one teaspoonful of compound tincture of iodine to a quart of 4.7 per cent glucose or normal saline solution and administering one to three quarts by hypodermoclysis. As soon as there is no nausea and fluids are taken freely, the preoperative dose of compound tincture of iodine is resumed and is continued until the patient is discharged.

Restlessness and pain are controlled by administration of $1\frac{1}{2}$ grains of pentabarbital sodium in 10 cc. saline per rectum every four hours; and when this is not sufficient, morphia grains $\frac{1}{6}$ to $\frac{1}{4}$ whenever necessary. These patients are kept very quiet for the first 48 hours and the fluid intake of 3000 cc. is maintained by giving sufficient saline as hypodermoclysis and 10 per cent glucose so-

lution intravenously. Should a severe post-operative crisis develop, the patient is given increasing doses of compound tincture of iodine in saline as hypodermoclysis or large doses of sodium iodide intravenously, 10 to 20 per cent solution of glucose intravenously, or continuous venoclysis and 8 to 10 ice bags around the heart, abdomen and thighs. Blood transfusions are at times indicated. The oxygen tent is also of great value.

Fortunately, since we have been carefully preparing our patients preoperatively as has been outlined, the incidences of severe post-operative explosive crises have been almost eliminated.

In the markedly debilitated patient, due to intercurrent disease, there are still other complications to be met with; respiratory infections, pulmonary edema and respiratory obstruction. It is for this type of complication, associated with cyanosis, that oxygen treatment, particularly the oxygen tent, has proved to be of special value.

After leaving the hospital, gradually decreasing doses of compound tincture of iodine are prescribed daily for the next three to four weeks, the dose depending upon the type of the gland and the degree of toxicity. They are told to do no work whatsoever for at least three to six months, depending upon the severity of the disease; to go to bed not later than 10 p. m. and have at least 10 hours rest; to lie down for two hours every afternoon and in general to avoid all physical or emotional strain; and women are told to avoid pregnancy for at least two years.

These patients are under observation for from six to twelve months, depending upon the degree of toxicity; and all foci of infection are eliminated within three to four months after operation.

422 Beaumont Building.

DISCUSSION

DR. WILLARD BARTLETT, JR., St. Louis: Dr. Mastin has stressed admirably in the length of time he had the standard and best knowledge of the handling of hyperthyroid patients. I want to call to your attention and merely outline the standards for the management of hyperthyroidism which I feel greatly expand the horizon in the care of such cases. The subject naturally divides itself into five phases from the time the patients are first seen until they finally pass from medical supervision.

The first phase is the estimation of the degree of toxicity. That is readily accomplished. Now we think we can tell with mathematical accuracy how much operating a given patient can stand at any given time.

Second is stabilization. That means that the patient is no longer getting worse but should show some improvement from that time on through medication while we consider at this time doing an operation.

Third is the operation which may vary according to the sequence of events.

Fourth is rehabilitation. This means the point when the patient writes that he has become as good as he was before the onset of the hyperthyroidism whatever his previous status has been, and this will vary from a week or ten days to six months or a year depending largely on the severity of the disease before the treatment was started.

Fifth is the supervision which follows rehabilitation. Supervision and rehabilitation are both founded on the recognition that the patient who has once become a hyperthyroid, as Dr. Mastin has told you, may become so again, that he is born with a potentiality which apparently every person does not have and this potentiality must be considered following operation if he is to win out. Therefore when our patients are discharged they are told that recovery from the operation is a matter of twenty-four hours; but recovery of the previous status before onset of the thyrotoxicosis is all the way from six months to a year. During that period we want to see them, or if they live at a distance we want them to see their physician once a month until rehabilitation is complete. Following that there is a period of supervision in which they should be checked up once a year bearing in mind that these patients have notoriously poor judgment concerning what is good for them. They give a history of nervous instability and only by taking into account the kind of individuals they are can the maximum benefit from operation be obtained. That is a matter in which the surgeon must have the cooperation of the patient's physician and where we get that we are very grateful because added benefit to the patient is most manifest.

THE DIPHTHERIA PROBLEM IN ST. LOUIS

E. SIGOLOFF, M.D.

ST. LOUIS

The four great advancements in our knowledge of diphtheria which stand out as monuments are as follows: First, the isolation and cultivation of the organism by Klebs-Loeffler in 1883 and 1884; second, the discovery of diphtheria antitoxin by Von Behring in 1890; third, the introduction of the test of immunity by Schick in 1913, and fourth, the use of toxin-antitoxin for immunization purposes suggested by Theobald Smith in 1907 but first applied clinically by Von Behring in 1913. The employment of toxin-antitoxin on a large scale, however, was due to the work of Park and Zingher in New York City. The use of toxoid or anatoxin and alum precipitated toxoid began relatively recently. Despite the almost universal use of these agents diphtheria is distributed practically all over the world and is endemic in the temperate zones.

In the calendar year of 1933, 9719 cases and 1213 deaths from communicable diseases

Read before the Missouri State Public Health Association, September 21, 1934.
Acting Epidemiologist, St. Louis Health Division.

were reported to the St. Louis Health Division. After excluding tuberculosis and pneumonia there remain 7958 cases and 328 deaths attributable to what may be termed acute communicable diseases. During this period we experienced an outbreak of epidemic encephalitis which accounted for 881 cases and 171 deaths which should be deducted from the sum total of reported diseases because of its unusual nature. This leaves a total of 7077 cases and 157 deaths of which there were 769 cases and 31 deaths from diphtheria. In other words, diphtheria was responsible for more than 10 per cent of the cases of acute communicable disease and for about 20 per cent of the deaths. These figures unquestionably indicate that the control of diphtheria in St. Louis is a real public health problem which merits the serious consideration of the health division, the medical profession and the public.

There has been a steady decline in diphtheria morbidity and mortality since 1926 as shown in table 1. However, in 1933 both

Table 1. Morbidity and Mortality Rates for Diphtheria in St. Louis During 1924-1933

| Year | Cases | Deaths | Morbidity Rate | Mortality Rate | Case Fatality |
|------|-------|--------|----------------|----------------|---------------|
| 1924 | 1800 | 79 | 226.9 | 9.9 | 4.4 |
| 1925 | 2131 | 92 | 266.7 | 11.5 | 4.3 |
| 1926 | 2286 | 109 | 284.3 | 13.6 | 4.8 |
| 1927 | 1592 | 67 | 196.8 | 8.3 | 4.2 |
| 1928 | 1501 | 72 | 184.4 | 8.9 | 4.8 |
| 1929 | 1581 | 64 | 193.3 | 7.8 | 4.1 |
| 1930 | 960 | 42 | 187.6 | 5.1 | 4.4 |
| 1931 | 829 | 38 | 100.1 | 4.6 | 4.6 |
| 1932 | 708 | 29 | 85.0 | 3.5 | 4.1 |
| 1933 | 769 | 31 | 91.6 | 3.7 | 4.0 |

rates increased. The expectancy morbidity rate should have been 70 instead of 91.6 and the mortality rate 2.3 instead of 3.7 per 100,000 population, or about 585 cases and 21 deaths. Thus far this year (1934) there has been a further increase in the number of reported cases of diphtheria indicating an upward trend in the status of diphtheria.

That St. Louis is woefully lacking in diphtheria control can best be illustrated by a comparison of the mortality rates in 17 large cities as shown in figure 1. Chicago with a population four times as large as St. Louis

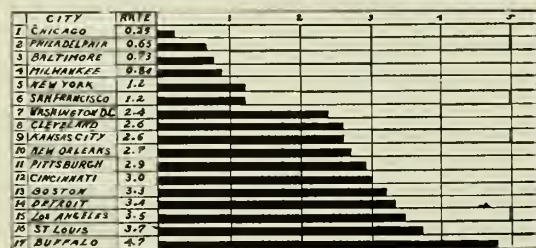


Fig. 1. Comparative Mortality of Diphtheria, 1933.

has the lowest mortality rate, whereas St. Louis presents the second highest mortality rate.

An analysis of the distribution of cases according to age groups as tabulated in table 2 shows that whereas 20 per cent of the cases occurred before the age of five, 41 per cent of the deaths occurred in this group.

Table 2. Distribution of Diphtheria According to Age Groups

| Age Group | 0-4 | 5-9 | 10-15 | 15-20 | Over 20 | Total |
|---------------|-----|-----|-------|-------|---------|-------|
| Cases | 158 | 342 | 107 | 44 | 118 | 769 |
| Deaths | 13 | 9 | 2 | 3 | 4 | 31 |
| Case fatality | 8.2 | 2.6 | 1.8 | 6.8 | 2.9 | 4.0 |

An analysis of table 2 indicates that in order to control diphtheria the preschool population must be reached. This was forcibly brought to our attention as a result of a diphtheria immunization survey made by CWA workers in 1933. This survey consisted of a four house canvass of each block in the city. St. Louis is divided into 600 census enumeration districts grouped around 26 statistical areas. The population of St. Louis is 842,305.

Table 3. "Sample Method" Diphtheria Immunization Survey

| Age Group | 0-4 | 5-9 | 10-15 | 15-19 | Over 20 | Total |
|--------------------|------|--------|--------|--------|---------|--------|
| Number interviewed | 4988 | 6369 | 5835 | 4310 | 33,141 | 54,637 |
| Number protected | 906 | 1790 | 1674 | 659 | 1138 | 6191 |
| Per cent protected | 18 | 28 2/3 | 28 1/2 | 15 1/4 | .03 1/2 | 11 |

The result of this survey as outlined in table 3 is fairly conclusive evidence of the cause of the high diphtheria mortality rate in the preschool group. Only 18 per cent of this age group has been protected against diphtheria. It is true that the above figures represent but a fraction of the entire population yet they serve as a satisfactory index. A house to house canvass in only five districts was also made and the results of both surveys check very closely.

Upon further analysis of table 3 we found that only 28 2/3 per cent of the 5-9 group was immunized against diphtheria making a combined total of 47 per cent of the preschool and school children immunized. If this figure is correct, and we believe it is within reasonable limits of error, it explains our poor showing in diphtheria control. Godfrey¹ has shown conclusively that only when more than 30 per cent of the children under the age of 5 in addition to more than 50 per cent of the 5-9 age group are immunized can any community expect an immediate and striking decline in the incidence of diphtheria. The total number of immunizations is inconsequential. In spite of the fact

that a total of 149,365 children of all groups were immunized in St. Louis during the last ten years the control of diphtheria is still utterly inadequate.

It soon became apparent to Dr. Bredeck upon induction into office as Health Commissioner that in order to improve the diphtheria problem in St. Louis the active cooperation of the medical profession was indispensable. Accordingly, on November 1, 1933, he submitted to the St. Louis Medical Society a program fashioned after the Vaughn (Detroit) Plan which was received favorably. The response of the public to this plan has not been very favorable thus far. The experience of health officers in cities where diphtheria is well controlled has shown that a house to house canvass by trained personnel, e. g., nurses, alone was one of the most successful methods of stimulating the parents' interest in diphtheria immunization. Such a canvass is now being made in St. Louis. The results have been very encouraging.

In November, 1933, we began to use alum precipitated toxoid almost exclusively. It was soon noted, however, that children above the age of 10 and adults did not tolerate this immunization agent as well as the Ramon toxoid or toxin-antitoxin. Accordingly, we have restricted the use of the alum precipitated toxoid to the under 10 year age group. The advantages of this method in mass immunization, postulated by various authors, Glenny, Pope,² Wells, Graham and Haven,³ and Graham, Murphree and Gill⁴ make it a potent weapon against diphtheria. It has a superior antigenic action. The preparation is more economical in that two to three times as many individuals can be immunized with the same amount of toxoid. Finally, about 95 per cent of positive Schick children become negative when tested two to four months after a single injection.

There are few communicable diseases indeed about which so much is known and which can be eliminated with as reasonable assurance as diphtheria. The diagnosis can be made with precision and the specificity of diphtheria antitoxin in the early treatment of diphtheria is no longer debatable. The immunity or nonimmunity of an individual can be determined very readily by means of the Schick test. The complete eradication of diphtheria or at least a marked decrease in its incidence can be accomplished by means of toxoid or toxin-antitoxin. If these facts were thoroughly appreciated by the public

diphtheria no longer would be a public health problem in St. Louis.

SUMMARY

1. The control of diphtheria in St. Louis is utterly inadequate.

2. This contention is based on the following: (a) It bears the second highest mortality rate of 17 large cities. (b) Only 18 per cent of the preschool age group and 28 $\frac{2}{3}$ per cent of the 5-9 age group are immunized against diphtheria.

3. Immunization of over 30 per cent of the 0-4 age group and over 50 per cent of the 5-9 group is absolutely essential in the control of diphtheria.

4. The advantages of the alum precipitated toxoid are enumerated.

Missouri Building.

BIBLIOGRAPHY

1. Godfrey, E. S., Jr.: Study in Epidemiology of Diphtheria in Relation to Active Immunization of Certain Age Groups, *Am. J. Pub. Health* **22**:237-256 (March) 1932.
2. Glenny, A. T.; Pope, C. G., et al.: Immunological Notes. *J. Path. and Bact.* **29**:31-40, 1926.
3. Wells, D. M.; Graham, A. H., and Havens, L. C.: Diphtheria Toxoid Precipitated With Alum, *Am. J. Pub. Health* **22**:648-650, 1932.
4. Graham, A. H.; Murphree, L. R., and Gill, D. G.: Diphtheria Immunization With Single Injection of Precipitated Toxoid, *J. A. M. A.* **100**:1096-1097 (April 8) 1933.

SPECIAL ARTICLE

CANCER SURVEY OF MISSOURI

FRANK LESLIE RECTOR, M.D.

Field Representative of the American Society
for the Control of Cancer

NEW YORK, N. Y.

As Barnard Hospital, St. Louis, is devoted primarily to the care of cancer patients the organization of its facilities for this purpose cannot be compared to those in the average general hospital receiving all types of cases.

The development of a special tumor service in Firmin Desloge Hospital, St. Louis, was under consideration at the time of this survey.

The number of cancer patients seen in the larger hospitals of Kansas City indicate that serious thought should be given to the organization of special facilities in these hospitals for the care of these patients. This statement applies also to hospitals in St. Joseph, Springfield and in one or more of the larger St. Louis hospitals not now having such a service. As far as facilities per-

Survey made by the American Society for the Control of Cancer at the request of the Missouri State Medical Association upon recommendation of the Committee on Cancer.

This is the sixth and concluding installment of the Survey.

mit a special tumor service might well be organized at Columbia to provide ample teaching material for the medical students in the State University and for service to the hospitals in central Missouri, a number of which are tributary to Columbia for pathological and irradiation services.

In Springfield facilities are available and it is the medical center of a sufficient area of the state to make it desirable to organize a special tumor service in that city.

So far as resources permit a special tumor service should be developed in Joplin to serve the area of which it is the medical center.

The use of existing facilities for the diagnosis and treatment of the indigent ambulatory cancer patients at State Hospital No. 1, Fulton, might well be continued with a careful evaluation from time to time of the service rendered. A minimum of criticism of this undertaking was heard during the course of this survey and such criticism came from areas from which no patient had been received up to the time this survey was completed. In communities adjacent to Fulton from which practically all patients had been received approval of the undertaking was expressed by physicians and hospital authorities.

Free service only can be rendered by Barnard Hospital, St. Louis. The budget of this hospital is provided partly by endowment and partly by contributions from the community chest of that city. Patients are required to pay only for the price of radon when used as this is not available in the hospital and must be purchased. The facilities of this hospital are greatly overtaxed, particularly the bed capacity for patients who must be hospitalized.

It has been the custom of this hospital to admit any cancer patient regardless of residence with the result that approximately 40 per cent of patients live outside St. Louis and 20 per cent outside of Missouri. The present situation results in a waiting period, sometimes reaching several weeks, before a patient can be admitted for treatment. As time is an all important element in the treatment of cancer serious consideration should be given by the trustees and staff of this hospital to limiting patients to the capacity of the institution for prompt treatment. Citizens of St. Louis should have first call for treatment, then other citizens of Missouri and finally nonresidents of Missouri if facilities are available.

This hospital has demonstrated the need for such an institution in the community. It

is receiving patients from an ever-increasing area so that its work is, at least, of state-wide importance and influence. Its work has passed the demonstration stage and should be recognized as an asset of the state in the care of indigent cancer patients. In view of these conditions consideration might well be given to a state appropriation for the work of this institution. If necessary the charter of this hospital should be changed to provide for the proposed expansion of its work.

What has been said about the development of special tumor services in various communities of the state is no criticism of physicians or hospitals in other communities but is to point out the practical difficulties in providing adequate diagnostic and treatment facilities in these places. So far as the resources of any community permit, the fullest possible service should be rendered to cancer patients and when conditions are found beyond the scope of local resources patients should be referred elsewhere for treatment.

In the organization of special tumor services in Joplin, St. Joseph and Springfield a quantity of radium to increase the present supplies to 200 or more milligrams in each city should be provided. The quantity available at both Barnes and Barnard hospitals, St. Louis, might be increased to a considerable extent, the ultimate quantity depending upon the needs of each institution. While the students of St. Louis University Medical School now have access to the radium in City Hospital No. 1, St. Louis, for their instruction in this form of therapy it would seem desirable that a supply of radium be obtained by Firmin Desloge Hospital for the special tumor service now being organized in that institution.

The use of radium in Missouri hospitals owning or controlling it should be safeguarded by restricting its use to those staff members competent in this form of therapy. Patients able to do so should pay reasonable fees for its use. On the other hand when it is available no patient should be denied treatment by radium because of inability to pay, provided there are physicians competent to use it. Physicians and institutions owning radium might well remember that there is no diminution in its therapeutic value by use and if indigent patients require treatment when the radium is not in use on paying patients no loss or injury is sustained in using it on such patients.

Contact should be maintained with all cancer patients for at least five years after

their first treatment and preferably for life. This is not so difficult in smaller communities as in larger ones because the condition of such patients can be readily ascertained from friends or relatives who are easily accessible in smaller communities. Such an undertaking requires cooperation of the clinical, record and social service departments of hospitals and utilization of official and private health and welfare facilities. The following outline indicates some major factors in such an undertaking.

OUTLINE OF PLAN OF FOLLOW-UP ON TUMOR PATIENTS

A. COOPERATING GROUPS

1. Hospital administrative groups
 - a. Superintendent
 - b. Social service worker
 - c. Record clerk
 - d. Chaplain
 - e. Nurses
2. Hospital staff
 - a. Cancer committee, if any
 - b. Physician in charge
 - c. Radiologist
 - d. Pathologist
 - e. Interns
3. Community groups
 - a. Department of health
 - A. Public health nurses
 - B. Bureau of vital statistics
 - b. Visiting nurses
 - c. Private health organizations
 - d. Charitable and welfare organizations
 - e. Life insurance companies

B. RECORDS

Records to be entered on forms comparable to all hospitals. The forms of the American College of Surgeons are recommended not that they are necessarily the best but offer a form from which comparable data may be obtained. Information as to deaths may often be obtained from the division of vital statistics of the local or state health department.

C. SCHEDULE

Follow-up to be maintained on approximately the following schedule:

- Monthly for the first six months
- Bimonthly for six months
- Every three months for the second year
- Semiannually for three years
- Annually thereafter, preferably for life

Information to be obtained by personal contact, by written inquiry and through cooperating groups noted

above. A personal letter is better than a printed form or post card inquiry.

Life insurance companies will help trace an insured person if the name, number of insurance policy and name of insurance company are given. They will know if such a person is alive and where located; or if dead, date and cause of death. Inquiries to trace such patients should be addressed to Dr. T. H. Willard, Medical Director, Metropolitan Life Insurance Company, 1 Madison Avenue, New York, who is chairman of the committee of the insurance companies having this matter in charge. It is suggested that the name of insurance company and number of policy, if any, be added to the record of all cancer cases.

The organization of a special medical group for the diagnosis and treatment of cancer should be based on two considerations: First, the better service such a group can render to cancer patients through combined diagnosis and opinion as to treatment; second, the opportunity offered for educational work in this field for medical and related groups. Given proper facilities the successful initiation of a program depends on the active interest of a few members of the hospital staff. This must be a compelling interest that will not stop to count the cost in time and energy necessary to advance the plan. The pathologist, radiologist, surgeon and internist must each be willing to contribute generously to the undertaking. Just which member of the group becomes the director depends on the local situation. The surgeon doubtless will be chosen in many cases. The pathologist, because of removal from actual clinical treatment, has much to recommend him. No matter who is chosen selection should be on the basis of active interest, executive talent and ability to win the cooperation of other members of the special group and hospital staff.

The question of treatment of pay patients always arises when an organized tumor service is discussed. Obviously for the good of the patient the same type of organization should be available for pay patients as serves the indigent group. It has been suggested that a physician should refer a paying cancer patient to the tumor service for diagnosis and advice regarding treatment, the treatment to be carried out as he may choose. This plan gives both the patient and the physician the advantage of group opinion on the case. Ways can be found for the care of pay patients in a special tumor service but the development of a plan rests with the local profession and hospitals.

Provision of adequate diagnostic and treatment facilities for malignant disease is beyond reach of the average general hospital from current resources. Assistance in meeting this need can be expected from two

sources only—private philanthropy or public taxation. Private funds will usually be larger in amount, of a more permanent nature and with fewer political alliances to handicap their administration.

After the superiority of an organized tumor service over existing uncoordinated methods of handling these cases has been established it may then be advisable to seek public support of this work. An extended period of demonstration is desirable, however, in order to develop local resources and interest before recourse to public funds is considered. Support of cancer control work by taxation places this disease in the public health group and distributes the burden among the entire population which, by reason of this participation, may develop a greater interest in the subject than if its support is left to the generosity of a few community minded persons.

The best method of meeting the cancer problem has not yet been developed. The medical profession should be given a reasonable time to show what it can do. If it fails and recourse to state aid is found desirable approach to such authority should be through medical channels. The medical profession should recognize however that the public is becoming daily more interested in the cancer problem. In general this interest has not yet become manifest through organization channels but it is only a question of time until such organized interest will be evident. Unless the profession takes full advantage of the present knowledge of the disease and methods and facilities for its diagnosis and treatment, it will be faced with the necessity of combating efforts of lay groups to place cancer with those diseases now controlled by the state.

The control of cancer is in the hands of the medical profession and hospitals where it properly belongs. The interested public should confine its efforts to strengthening the resources of these two groups and to lay educational work so that cancer patients will come for examination at the earliest possible moment while there is the greatest opportunity for obtaining relief.

The medical profession should appreciate that cancer is not a one-man disease but requires the best thought and skill of a special group for its diagnosis and treatment. The profession should also be stimulated by the thought that cancer is one of the few diseases in which medical skill alone can bring about a cure. Neglected cancer always kills but the physician, by his skillful removal or destruction of all malignant tissue, places

his patient out of danger of death from this disease.

Physicians should not temporize with cancer or suspected cancer. Expectant treatment, viz., waiting to see what develops in the next few weeks or months, has no place in accepted cancer therapy. The answer should be obtained when the case is first seen. For practically all forms of malignancy the physician has a choice of recognized methods of diagnosis and treatment. If facilities are not available locally the patient should be referred to an institution where the answer can be given. Numerous instances could be cited where delay resulted fatally when there was a strong probability of recovery by proper treatment when medical opinion was first consulted, and also where a bold approach revealed malignancy in a tumor to all appearances benign when first seen. Only by a vigorous attack on the problem by physicians skilled in diagnosis and treatment of the disease can progress be made in reducing its incidence and mortality.

Cancer is probably the greatest challenge now before the medical world. Its wide distribution and increasing mortality demand the best thought of all scientists and only by intensive and cooperative efforts can the problem be solved.

The Missouri State Medical Association can make an important contribution to cancer control by better coordination of the educational and therapeutic resources of the state for the benefit alike of the physician and public. A continuing program of postgraduate medical instruction to be developed in cooperation with the medical schools, the Postgraduate Committee and the Committee on Cancer of the State Medical Association should be offered to the physicians of the state. Such a program might well be projected over a five-year period during which at least one cancer program annually would be given before each local medical society. One type of cancer such as breast, uterus, skin, etc., might be featured for a year's work so at the end of five years the major forms of malignancy would have been covered in a comprehensive postgraduate course. A cancer symposium and suitable exhibit would be desirable features at each annual state meeting. A short intensive course in tumor diagnosis and treatment might well be offered annually by the medical departments of Washington and St. Louis universities. Similar courses could be developed by the staffs of the larger hospitals in Kansas City and at Columbia.

A program could be developed for the laity by offering speakers to women's clubs, churches, colleges and civic organizations.

The development of a program of periodic releases to the newspapers of the state under authority of the State Medical Association might well be considered. A similar service in other states has provided a suitable medium for public educational programs in health and medical matters.

Radio broadcasting offers another medium of health education utilized by some state medical organizations. Minnesota, for example, has contributed a weekly broadcast for several years, each fourth broadcast being on some cancer subject. The American Medical Association also maintains two nation-wide hook-ups for broadcasting health and medical information at periodic intervals.

The State Medical Association could bring about discussion and appraisal of diagnostic and treatment methods in cancer looking toward greater uniformity of procedure in these important matters. It could encourage closer cooperation between the surgeon, internist, pathologist, radiologist and family physician in handling these cases. It should take the initiative in securing more autopsies and bringing about laboratory examination of all removed tissues in hospitals of the state not now having provision for such examination. It should encourage the appointment of cancer committees in each local medical society and in hospitals treating cancer patients.

Development of the above program should include dentists who should be given every opportunity to profit from these activities as they have opportunity to discover many malignant conditions in and around the mouth, and nurses who also have a responsibility in the cancer program.

Cancer is given little attention by the State Department of Health of Missouri. The division of vital statistics collects and analyzes mortality figures and members of the department occasionally discuss the subject in public addresses. It is believed that the Health Department could contribute to the cancer education program by distributing information and literature on this subject.

In view of the importance of cancer as a disabling disease creating many problems that require extensive public education for their solution and as a cause of death in Missouri, the State Department of Health might well consider the organization of a Division of Cancer Control. Such a division

could carry on investigations in prevention and control of cancer, the analysis of hospital and autopsy records, and of death certificates and their correlation for the presentation of accurate information on the cancer situation in the state. Such studies and correlations would be of great assistance to the physician, would do much to improve hospital diagnosis and practice and would supply an abundance of material for public education in prevention and control of this disease.

If information now available as to methods of preventing and controlling cancer were utilized by the public and the medical profession, a marked reduction could be brought about in the incidence and mortality from this disease. The State Department of Health is one of the logical mediums through which this information should reach the public and the possibilities of bringing about a reduction in cancer incidence and deaths are sufficiently encouraging to justify official health agencies in undertaking this task.

The Missouri Committee of the American Society for the Control of Cancer could assist the State Medical Association in the preparation of material for postgraduate work and local medical society programs. It can also assist in providing literature on cancer topics and competent speakers for lay meetings and similar activities. It can render assistance to organized tumor services by directing the public to them, by providing educational material, by helping finance needed clerical assistance when the service is in operation, by cooperating in the follow-up of cancer patients and by similar undertakings.

It would be a practical and logical procedure for the Missouri State Medical Association, the State Department of Health and the State Committee of the American Society for the Control of Cancer to cooperate in a state wide educational program. The details of such a program will be discussed later. This plan, if carried into full operation, would provide for Missouri an improved service for all cancer patients within the state. It would educate physicians in acceptable diagnostic and treatment methods and would provide the public with factual and other information about the disease.

RECOMMENDATIONS

The following recommendations are made for an improved cancer control program in Missouri:

1. Special tumor services, to meet as far

as possible the minimum standards of the American College of Surgeons, should be organized in Joplin, St. Joseph and Springfield and in the Kansas City and additional St. Louis hospitals seeing the largest number of cancer patients.

2. A tumor service, primarily for diagnosis and such therapy as available, should be organized at Columbia and in the St. Louis County Hospital at Clayton.

3. A tumor service should be organized at the Firmin Desloge Hospital, St. Louis, primarily for undergraduate teaching for the St. Louis University Medical School.

4. The tumor service in the surgical department of Barnes Hospital, St. Louis, should be developed into a teaching clinic for undergraduate medical students at Washington University Medical School as soon as practicable.

5. The tumor service at State Hospital No. 1, Fulton, should be continued under existing auspices.

6. Means should be sought to make the full capacity of Barnard Hospital available. This would include completion of unfinished rooms for hospital use and additional equipment for irradiation therapy. Provision should also be made for research, both laboratory and clinical, in this institution.

7. In order to provide a more prompt service Barnard Free Skin and Cancer Hospital, St. Louis, should restrict admission to patients (a) residents of St. Louis, (b) other residents of Missouri, (c) residents of other states, in the order named.

8. Trustees of Barnard Hospital should consider asking for state funds for the treatment of indigent residents of Missouri outside of St. Louis.

9. The facilities of Barnard Hospital should be utilized by both of the St. Louis medical schools for undergraduate teaching.

10. A comparable and adequate record system should be used by all hospitals treating cancer patients. The record forms of the American College of Surgeons are recommended for this purpose.

11. An adequate staff of medically trained social workers should be attached to all special tumor services and should cooperate fully with clinical and record departments of hospitals with which they are connected.

12. Tumor registries should be developed in Kansas City and St. Louis in which would be filed tissues, slides and concise clinical data on tumors removed in hospitals of these cities.

13. The Missouri State Medical Association should encourage the provision of bet-

ter laboratory facilities for tissue examination among the smaller hospitals of the state.

14. The Missouri State Medical Association should stimulate efforts to procure more autopsies in the hospitals of Missouri.

15. The Missouri State Medical Association, through its Postgraduate Committee and Committee on Cancer, should organize a five-year educational program among its members in which cancer of a different region would be featured each year.

16. One meeting annually of each local medical society should be devoted to cancer and each meeting of the State Medical Association should offer a cancer symposium and suitable exhibit.

17. The Missouri State Medical Association should sponsor postgraduate courses in St. Louis University and Washington University medical schools; also at Columbia and in the larger Kansas City hospitals having sufficient clinical material for such purposes.

18. The Missouri State Medical Association should stimulate hospitals to greater uniformity of procedures for the diagnosis and treatment of cancer. It should recommend the appointment of cancer committees in each local medical society and in the larger general hospitals of the state.

19. The Missouri State Medical Association should discourage the rental and use of radium by physicians not qualified to use it and should advise the public of the probable consequences when radium is so used.

20. The Missouri State Medical Association, in cooperation with the State Department of Health and the State Committee of the American Society for the Control of Cancer, should organize a program of education for the laity which would also include the colleges of the state. It should enlist the interest of the dental and nursing professions in its educational activities.

21. The Missouri State Medical Association might well consider the development of a press service whereby the newspapers of the state would be supplied at regular intervals with authoritative statements on health and medical matters. A similar service utilizing the radio might also be developed. The State Department of Health should cooperate in this work.

22. There should be developed in the State Department of Health a Division of Cancer Control with personnel and budget to carry out studies in the prevention and control of cancer, the analysis of hospital records, autopsies, and death certificates and of other information pertinent to this ques-

tion. The director of this division should be a physician having clinical or other experience with cancer problems. Activities of this division should be educational in character and should not enter into the treatment of cancer in any form.

23. The State Committee of the American Society for the Control of Cancer should maintain a constructive interest in cancer prevention and control throughout the state. Where needed it should assist in the work of organized tumor services and should cooperate with all other health and educational forces. Its members should serve as information centers on cancer problems in their communities. Local committees should be formed when there is need for support of local cancer work.

24. It is believed that the needs of the cancer problem in Missouri will be met by development of organized tumor services along the lines mentioned. It is realized that cancer patients will continue to be treated in hospitals not equipped for cancer therapy and in physicians' offices. The present status of cancer therapy makes it inadvisable for an institution or physician to undertake such work unless there are adequate facilities for diagnosis, treatment, record keeping and social service follow-up.

25. It is believed these recommendations for an improved cancer service in Missouri can be made effective by cooperation of the Missouri State Medical Association representing the clinical and educational phases of medicine, the State Department of Health and the State Committee of the American Society for the Control of Cancer in a tripartite organization for cancer control. This cooperative group could organize the cancer control facilities of the state so that cancer patients would receive adequate treatment in the earliest possible stage of the disease. This organized effort would offer an unexcelled opportunity for undergraduate and postgraduate education in cancer diagnosis and therapy. Its effective working would make unnecessary the entrance of any other agency into the field of cancer prevention and control in Missouri. The contribution members of this tripartite organization would make and the problems on which they would cooperate are indicated in the following pages.

26. If and when this report is approved by the Missouri State Medical Association, its publication in full in the official journal of the association is recommended.

27. There is appended to this report a short bibliography of books, journals and re-

ports on cancer subjects. This reading list is recommended to physicians, medical societies and hospitals as suitable material from which authentic information on cancer can be obtained.

PROGRAM OF TRIPARTITE ORGANIZATION FOR CANCER PREVENTION AND CONTROL IN MISSOURI

A. Missouri State Medical Association

1. The Missouri State Medical Association, cooperating with the medical schools, should develop an educational program for the physicians of Missouri in approved methods of diagnosis and treatment of cancer and allied diseases.

2. It should cooperate with hospitals and other organizations to see that adequate facilities are available and competent treatment rendered to cancer patients in these institutions.

3. It should stimulate the provision of adequate laboratory facilities and trained personnel for the examination of all tumor tissues removed in the hospitals of Missouri.

4. It should stimulate the holding of more autopsies in Missouri hospitals.

5. It should stimulate its members promptly to refer cases which they do not care to treat to institutions and to specialists interested in such cases.

6. It should endeavor to secure better histories and records of treatment of cancer patients and to obtain more accurate causes of death on death certificates.

7. It should encourage its members to read papers on cancer subjects at local and state society meetings.

8. It should supply its members with reliable statistics of the value of early diagnosis and adequate treatment.

B. State Department of Health

1. The State Department of Health of Missouri should make surveys to determine the character and extent of the cancer problem within the state as to the facilities available for caring for such patients and the actual number of cases and deaths in a manner similar to which information about other diseases is now obtained.

2. It should compile statistics from hospital cancer records by age, sex, organ, type of lesion and of the time elapsing between the patient's first knowledge of the disease and his seeking medical attention.

3. It should assist the Missouri State Medical Association, welfare and other organizations to make studies of the economic problems of cancer patients in Missouri.

4. In cooperation with the Missouri State Medical Association it should stimulate the provision of proper facilities for the examination of tumor tissue in the hospitals of the state.

5. In cooperation with the Missouri State Medical Association it should provide informative articles on the cancer problem for distribution to the laity.

6. It should estimate periodically amount and quality of cancer service given in the state on the lines laid down in the "Appraisal Form" of the American Public Health Association.

7. It should cooperate with the State Committee of the American Society for the Control of Cancer in its work of education of the public regarding early signs and symptoms of cancer and the value of early adequate treatment.

C. Missouri State Cancer Committee

1. This Committee should cooperate with the Missouri State Medical Association and the State Department of Health in activities suggested for these two organizations under this tripartite arrangement.

2. It should assist in education of the public in early signs and symptoms of cancer, the value of early diagnosis and adequate treatment and where such services can be obtained.

3. It should teach the public the value of periodic examination as a means of detecting cancer in its early and most hopeful stage.

4. It should educate responsible individuals in Missouri to the value of adequate facilities for the diagnosis and treatment of cancer and should urge the provision of funds when and where needed to supplement existing facilities for the treatment of this disease.

5. It should cooperate with voluntary health and welfare agencies in constructive activities relating to cancer.

6. It should keep fully advised of policies of the American Society for the Control of Cancer, of which it is the local representative, and should avail itself of all facilities the parent society has to offer. It should furnish the Missouri State Medical Association and the State Department of Health with educational material from the parent society and should keep the society's field representative for that territory fully advised of its activities.

BIBLIOGRAPHY

BOOKS

International Cancer Conference at London. Octavo, 588 pages. Bristol, England: John Wright & Sons. 1928. Price \$12.00.

Neoplastic Diseases. By James Ewing. Octavo, 1127 pages. Philadelphia: W. B. Saunders Company. 1928. Price \$14.00.

Uterine Tumors. By Charles C. Norris. 16 mo., 251 pages. New York: Harper & Brothers. 1930. Price \$3.00.

Cancer of the Breast. By William Crawford White. 16 mo., 221 pages. New York: Harper & Brothers. 1930. Price \$3.00.

Cancer of the Rectum. By E. Ernest Miles. 12 mo., 72 pages. London, England: Harrison & Sons. 1926.

Bone Sarcoma. By Anatole Kolodny. Royal octavo, 214 pages. New York: American Journal of Cancer. 1927. Price \$5.00.

Tumors of Bone. By Geschickter and Copeland. Royal octavo, 214 pages. New York: American Journal of Cancer. 1927. Price \$5.00.

X-Rays and Radium in the Treatment of Diseases of the Skin. By George M. MacKee. Medium octavo, 788 pages. Philadelphia: Lea & Febiger. 1927. Price \$10.00.

Causation, Prevention and Treatment of Cancer. By James Ewing. Post octavo, 87 pages. Baltimore: Williams & Wilkins Company. 1931. Price \$1.00.

The Natural History of Cancer. By W. Roger Williams. Medium octavo, 519 pages. New York: William Wood & Company. 1908. Price \$3.00.

JOURNALS

The American Journal of Cancer. Issued monthly. Price annually \$6.00. 654 Madison Avenue, New York.

Bulletin of the American Society for the Control of Cancer. Issued monthly. Price annually \$1.00. 1250 Sixth Avenue, New York.

REPORTS

Report of the Royal Commission on the Use of Radium and X-Rays in the Treatment of the Sick. Dr. John W. S. McCullough, Secretary, Chief Inspector of Health, Parliament Buildings, Toronto, Ontario, Canada.

Cancer Survey of St. Louis and St. Louis County, Missouri. Journal of the Missouri State Medical Association, June, 1932, pp. 249-275.

Cancer Survey of Wisconsin, 1931. The Wisconsin Medical Journal, September, 1932.

CLINICAL MUTATIONS IN LYMPHOBLASTOMAS

Udo J. Wile and Frank Stiles, Jr., Ann Arbor, Mich. (Journal A. M. A., Feb. 16, 1935), report a case of unusual duration showing definitely a mutation from clinical mycosis fungoides to Hodgkin's disease. When first examined in 1921 it presented the features emphasized by Ormsby in the differentiation of mycosis fungoides from the other lymphoblastomas, while at a later date it gave the characteristic changes of Hodgkin's disease. If one is to believe that the two conditions are distinct entities, there are but two ways to explain this case: first, that it is a case of mycosis fungoides in a patient who has later developed Hodgkin's disease also and, second, that the disease was originally a case of Hodgkin's disease which was at first misinterpreted as mycosis fungoides and only later recognized. The first explanation seems a poor one, since it requires two diagnoses to explain a condition that has been continuous. The second explanation also seems inadequate, since this case in the early part of its course possesses all the characteristics that identify the premycotic stage of mycosis fungoides as an entity. A more logical explanation, and one that is easier to understand, is that this case presents a malignant disease of the lymphoid tissues, first involving the lymphoid structures in the skin and producing the picture that is recognized as mycosis fungoides, and later involving the lymph glands themselves, producing the picture that dermatologists have learned to classify as Hodgkin's disease. In the slow growing types of lymphoblastoma there are apt to be more fibroblastic proliferations. Fibrosis in the lymph glands in Hodgkin's disease is one of the important diagnostic changes, and this is well marked in this particular case. It is interesting to note that this case has shown unusually slow progress, the known duration extending over a period of eighteen years. It is not improbable that the irradiation received by the patient has been influential in preventing the late picture of mycosis fungoides and may have been influential in the production of fibrosis, which constitutes an important part of the pathologic picture in Hodgkin's disease.

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MARCH, 1935

EDITORIALS

ACTION OF THE SPECIAL SESSION OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSO- CIATION ON PROPOSED LEGISLA- TION BY CONGRESS ON SICKNESS OR HEALTH INSURANCE.

The House of Delegates of the American Medical Association met in special session at Chicago, February 15 and 16, 1935, for the purpose of considering proposed legislation by Congress and state legislatures on sickness or health insurance.

On January 17, 1935, the President of the United States sent a message to Congress relative to unemployment insurance, old age pensions, Federal aid to dependent children, the support of existing mothers' pension systems, appropriation for services for the protection and care of the homeless, neglected, dependent and crippled children and, finally, official aid by the Federal Government to state and local public health agencies and for the strengthening of public health service. Of sickness insurance the President said that he was not at this time recommending the adoption of so-called "health insurance." Coincident with the President's message the Committee on Economic Security appointed by the President issued a statement that the advisory groups cooperating with the Federal Government would be given until March 1 to complete their work and that shortly thereafter a further report would be made to the President. Eleven principles were included in the report to the President made by the Committee on Economic Security as being information to the profession and the public concerning the main lines along which the studies were be-

ing made. These principles were published in the February issue of THE JOURNAL in the editorial entitled "Progress of Plans for Economic Security," page 69.

We call attention to the provisions of S. 1130 submitted by Senator Wagner of New York (known as the Wagner Bill for social insurance) and the so-called Epstein Bill promulgated by the Association for Social Security for introduction in the legislatures of the various states. The Epstein Bill has not been introduced in the Missouri State Legislature but has been in California, Pennsylvania and several other states. The Epstein Bill as drafted would include 95 per cent of the entire population of the United States.

One hundred sixty-one delegates were present in Chicago to consider these important problems. After two days of most serious deliberation the report of the Reference Committee was adopted unanimously. The delegates felt that in order to combat socialized medicine successfully the profession of the country must unite solidly in its endorsement of the resolution adopted by the American Medical Association and that this should be done at once. While there may be some differences of opinion as to the verbiage of the resolution adopted, yet all should agree to the principle of the resolution in order to maintain the institution of medicine as it is now constituted.

At a special meeting of the Executive Committee of the Missouri State Medical Association held in St. Louis, Sunday, February 17, 1935, the resolution adopted by the House of Delegates of the American Medical Association was unanimously approved. The Executive Committee has requested each Councilor to present this matter for consideration to each medical society in his district so that all members of the profession in Missouri may have a thorough understanding of the status of proposed legislation on sickness insurance. It was further suggested that a resolution endorsing the action of the House of Delegates of the American Medical Association be presented to each county medical society for adoption.

It is extremely important that each county medical society send to the members of the United States Senate from Missouri and to the member of the House of Representatives in Congress representing the district in which the county medical society is located a copy of such resolution as may be adopted protesting against the proposed sickness insurance legislation. Individual letters from

members of each county medical society to the members of the Senate and the House of Representative are also suggested.

The following is the report of the Reference Committee of the House of Delegates on the official statement of the Board of Trustees to the House of Delegates of the American Medical Association at the special session, February 15 and 16, unanimously adopted by the House of Delegates:

Your reference committee, believing that regimentation of the medical profession and lay control of medical practice will be fatal to medical progress and inevitably lower the quality of medical service now available to the American people, condemns unreservedly all propaganda, legislation or political manipulation leading to these ends.

Your reference committee has given careful consideration to the record by the Board of Trustees of the previous actions of this House of Delegates concerning sickness insurance and organized medical care and to the account of the measures taken by the Board of Trustees and the officials of the Association to present this point of view to the government and to the people.

The American Medical Association, embracing in its membership some 100,000 of the physicians of the United States, is by far the largest medical organization in this country. The House of Delegates would point out that the American Medical Association is the only medical organization open to all reputable physicians and established on truly democratic principles, and that this House of Delegates, as constituted, is the only body truly representative of the medical profession.

The House of Delegates commends the Board of Trustees and the officers of the Association for their efforts in presenting correctly, maintaining and promoting the policies and principles, heretofore established by this body.

The primary considerations of the physicians constituting the American Medical Association are the welfare of the people, the preservation of their health and their care in sickness, the advancement of medical science, the improvement of medical care, and the provision of adequate medical service to all the people. These physicians are the only body in the United States qualified by experience and training to guide and suitably control plans for the provision of medical care. The fact that the quality of medical service to the people of the United States today is better than that of any other country in the world is evidence of the extent to which the American medical profession has fulfilled its obligations.

The House of Delegates of the American Medical Association reaffirms its opposition to all forms of compulsory sickness insurance whether administered by the Federal government, the governments of the individual states or by any individual industry, community or similar body. It reaffirms, also, its encouragement to local medical organizations to establish plans for the provision of adequate medical service for all of the people, adjusted to present economic conditions, by voluntary budgeting to meet the costs of illness.

The medical profession has given of its utmost to the American people, not only in this but in every previous emergency. It has never required compulsion but has always volunteered its services in anticipation of their need.

The Committee on Economic Security, appointed by the President of the United States, presented in a preliminary report to Congress on January 17 eleven prin-

ciples which that Committee considered fundamental to a proposed plan of compulsory health insurance. The House of Delegates is glad to recognize that some of the fundamental considerations for an adequate, reliable and safe medical service established by the medical profession through years of experience in medical practice are found by the Committee to be essential to its own plans.

However, so many inconsistencies and incompatibilities are apparent in the report of the President's Committee on Economic Security thus far presented that many more facts and details are necessary for a proper consideration.

The House of Delegates recognizes the necessity under conditions of emergency for federal aid in meeting basic needs of the indigent; it deprecates, however, any provision whereby federal subsidies for medical services are administered and controlled by a lay bureau. While the desirability of adequate medical service for crippled children and for the preservation of child and maternal health is beyond question, the House of Delegates deplores and protests those sections of the Wagner Bill which place in the Children's Bureau of the Department of Labor the responsibility for the administration of funds for these purposes.

The House of Delegates condemns as pernicious that section of the Wagner Bill which creates a social insurance board without specification of the character of its personnel to administer functions essentially medical in character and demanding technical knowledge not available to those without medical training.

The so-called Epstein Bill, proposed by the American Association for Social Security now being promoted with propaganda in the individual states, is a vicious, deceptive, dangerous and demoralizing measure. An analysis of this proposed law has been published by the American Medical Association. It introduces such hazardous principles as multiple taxation, inordinate costs, extravagant administration and an inevitable trend toward social and financial bankruptcy.

The Committee has studied this matter from a broad standpoint, considering many plans submitted by the Bureau of Medical Economics as well as those conveyed in resolutions from the floor of the House of Delegates. It reiterates the fact that there is no model plan which is a cure-all for the social ills any more than there is a panacea for the physical ills that affect mankind. There are now more than 150 plans for medical service undergoing study and trial in various communities in the United States. Your Bureau of Medical Economics has studied these plans and is now ready and willing to advise medical societies in the creation and operation of such plans. The plans developed by the Bureau of Medical Economics will serve the people of the community in the prevention of disease, the maintenance of health and with curative care in illness. They must at the same time meet apparent economic factors and protect the public welfare by safeguarding to the medical profession the functions of control of medical standards and the continued advancement of medical educational requirements. They must not destroy that initiative which is vital to the highest type of medical service.

In the establishment of all such plans, county medical societies must be guided by the ten fundamental principles adopted by this House of Delegates at the annual session in June, 1934. The House of Delegates would again emphasize particularly the necessity for separate provision for hospital facilities and the physician's services. Payment for medical service, whether by prepayment plans, installment purchase or so-called

voluntary hospital insurance plans, must hold, as absolutely distinct, remuneration for hospital care on the one hand and the individual, personal, scientific ministrations of the physician on the other.

Your Reference Committee suggests that the Board of Trustees request the Bureau of Medical Economics to study further the plans now existing and such as may develop, with special reference to the way in which they meet the needs of their communities, to the costs of operation, to the quality of service rendered, the effects of such service on the medical profession, the applicability to rural, village, urban and industrial population, and to develop for presentation at the meeting of the American Medical Association in June model skeleton plans adapted to the needs of populations of various types.

(Signed)

HARRY H. WILSON, Chairman, California
WARREN F. DRAPER, Virginia
E. F. CODY, Massachusetts
E. H. CARY, Texas
N. B. VAN ETEN, New York
F. S. CROCKETT, Indiana
W. F. BRAASCH, Minnesota

Reference Committee.

ANNUAL MEETING OF THE COUNCIL

The annual meeting of the Council convened in Columbia, November 19, with thirty-six members present. Dr. A. R. McComas, Sturgeon, Chairman, presided.

Reports were presented by the chairmen of the committees on Postgraduate Work, Public Policy, Publication, Cancer, McAleser Foundation and Auditing and Appropriations. All reports were adopted including a budget presented by the Committee on Auditing and Appropriations for expenditures of the Association during 1935.

Two appointments made previously by the President, Dr. C. T. Ryland, Lexington, were approved by the Council. These were the appointment of Dr. Walter Baumgarten, St. Louis, as a member of the Committee on Publication to fill the vacancy created by the death of Dr. M. A. Bliss, St. Louis, and that of Dr. Charles H. Dixon, Moberly, as Councilor of the 10th District to fill the vacancy created by the death of Dr. Don A. Barnhart, Huntsville.

Dr. W. T. Elam, St. Joseph, tendered his resignation as a member of the Committee on Public Policy and Dr. W. H. Breuer, St. James, was appointed to fill the vacancy.

Dr. Dudley A. Conley, Columbia, was appointed a member of the Committee on Medical Education and Hospitals upon the resignation of Dr. W. H. Breuer, St. James, from that committee.

Dr. Spence Redman, Platte City, was elected chairman of the General Committee on Arrangements for the 1935 Annual Session to be held in Excelsior Springs, May 6, 7, 8 and 9. Dr. A. J. Welch, Kansas City,

and Dr. W. T. Elam, St. Joseph, were elected members of the committee. Dr. Joseph V. Dauksys, Excelsior Springs, was appointed chairman of the Local Committee on Arrangements.

The Chairman appointed the following members as the Committee on Auditing and Appropriations: Dr. W. H. Breuer, St. James; Dr. W. M. West, Monett, and Dr. R. M. James, Joplin.

Dr. Dudley A. Conley, Columbia, explained the purpose of the Missouri Academy of Science and upon his suggestion the Missouri State Medical Association took membership in the academy.

Dr. A. J. Kotkis, St. Louis, a guest, outlined a plan of work for a committee on physical therapy, the aim of the committee to be the same as that of the Council on Physical Therapy of the American Medical Association, viz., to put the practical application of physical therapy on as high a plane throughout the United States as is now enjoyed only in a few localized medical centers. Such a committee was approved by the Council. The President appointed Dr. Kotkis and Dr. Frank H. Ewerhardt, St. Louis, as members of the committee, three other members to be appointed later.

EXCELSIOR SPRINGS SESSION

The Clay County Medical Society is enthusiastically preparing for the Annual Session to be held in Excelsior Springs, May 6, 7, 8 and 9, 1935. Committees have been appointed and are engaged in arranging for the meeting.

Dr. Joseph Dauksys, Excelsior Springs, was selected by the Council as chairman of the Local Committee on Arrangements. Other members of that committee are Drs. Eugene B. Robichaux, J. E. Baird, J. E. Musgrave and J. J. Gaines, Excelsior Springs.

Other committees which have been appointed are:

Registration: Dr. J. E. Baird, Excelsior Springs, chairman; Dr. H. O. Leinhardt, North Kansas City, and Dr. Burton Maltby, Liberty.

Finance: Dr. J. E. Musgrave, Excelsior Springs, chairman; Dr. W. J. James, Excelsior Springs, and Dr. F. H. Matthews, Liberty.

Clinics: Dr. J. A. Howell, Excelsior Springs, chairman; Dr. Eugene B. Robichaux and Dr. Robert C. Cook, Excelsior Springs.

Entertainment: Dr. E. C. Robichaux, Excelsior Springs, chairman; Dr. W. L. Wy-

song, Liberty, and Dr. J. E. Baird, Excelsior Springs.

Hotels: Dr. Eugene B. Robichaux, Excelsior Springs, chairman; Dr. J. E. Musgrave, Dr. Y. D. Craven and Dr. C. H. Suddarth, Excelsior Springs.

Publicity: Dr. S. R. McCracken, Excelsior Springs, chairman; Dr. W. N. Cuthbertson, Liberty, and Dr. Harry R. Staley, North Kansas City.

Reception: Dr. J. H. Rothwell, Liberty, chairman; Dr. S. D. Henry and Dr. H. J. Clark, Excelsior Springs; Dr. R. E. Sevier, Liberty; Dr. J. F. Rupe, Smithville, and Dr. J. W. Epler, Kearney.

Scientific Exhibits: Dr. W. H. Goodson, Liberty, chairman; Dr. N. R. Schumacher, Kearney, and Dr. Joseph Dauksys, Excelsior Springs.

STATUS OF BILLS IN LEGISLATURE

Committee substitute for H. B. 174 relating to Workmen's Compensation has been reported upon favorably by the committee. This bill provides that the term "physician or surgeon" shall be construed to include any duly licensed healing practitioner and the term "medical or surgical" examination shall be construed to mean and include any treatment or examination by any duly licensed healing practitioner in this state. This bill throws down the bars in the selection of qualified medical and surgical practitioners and would be inimical to the welfare of the injured employee.

H. B. 300 relating to Workmen's Compensation makes it a misdemeanor for any person having charge or custody of any hospital or medical record of any employe to refuse inspection of such records or refuse to furnish certain information to certain persons and provides punishment by fine of not less than \$50 nor more than \$500 or by imprisonment in the county jail for not less than ten days nor more than thirty days or by both such fine and imprisonment.

H. B. 388 provides that all persons practicing medicine or surgery or midwifery or chiropody shall annually register with the State Board of Health and secure a certificate of registration and pay a fee of \$2. Upon failing to register a practitioner's license may be revoked. The funds derived would go for the expenses of the State Board of Health. This bill is simply a revenue bill and should be opposed.

Other bills of interest are:

H. B. 148. Prohibits sale of marijuana

and prescribes penalties for violation. This passed the House with an emergency clause.

H. B. 183. Workmen's Compensation. Provides under certain conditions reasonable sums for medical testimony on employe's behalf and attorneys' fees.

H. B. 261. Workmen's Compensation. Defines occupational diseases and limits time that compensation is to be paid.

H. B. 303. Workmen's Compensation. Provides that in contested cases the commission may appoint a physician to examine injured employes; all fees to be fixed by the commission and paid by the employer.

H. B. 361. Medical Treatment for Deserving. Provides that deserving may have medical care upon order of the county court by county doctor and paid for from general revenue fund.

H. B. 410. Receiving Centers. Eleemosynary Institutions. Authorizes board of managers to establish receiving centers for study, diagnosis, etc., to make agreements with hospitals and clinics relative study of patients.

S. B. 39. State Hospitals. Amends R. S. 1929, relating to state hospitals. Provides that diagnosis, treatment and temporary care not to exceed six weeks may be given at any state hospital to any indigent resident of the state, not insane, but suffering from nervous or mental affliction and who is likely to become a public charge.

Several bills affecting the interests of public health are under consideration at this time and need no comment.

NEWS NOTES

Dr. M. Pinson Neal, Columbia, delivered an address on "The Leukocyte Blood Picture as an Index to Infection and Resistance" at the Mid-South Post-Graduate Medical Assembly at Memphis, Tennessee, February 14.

Dr. C. E. Burford, St. Louis, addressed a meeting of the Academy of Medicine at Toledo, Ohio, on February 1. Dr. Burford spoke on "Tuberculosis of the Genito-Urinary Tract."

Dr. August A. Werner, St. Louis, was the guest of the Morgan County (Illinois) Medical Society on February 14 at Jacksonville, Illinois. He presented an address on "Inter-relationship of Some Anterior Pituitary, Gonad and Thyroid Hormones."

Members of the Wisconsin Surgical Club were guests of the Jackson County Medical Society in Kansas City, Missouri, on the evening of February 5.

Dr. William L. McBride, Kansas City, delivered several lectures at the International Post-Graduate Medical Assembly meeting at San Antonio, Texas, January 29 to 31.

Dr. F. H. Ewerhardt, St. Louis, will address the midwestern section of the American Congress of Physical Therapy at its meeting in Madison, Wisconsin, March 12. His subject will be "Physical Therapy in Relation to Orthopedic Surgery."

The seventh International Congress on Industrial Accidents and Diseases will be held at Brussels, Belgium, from July 22 to 27, 1935. The American committee for the section on accidents is under the chairmanship of Dr. Fred H. Albee, New York, and the committee on diseases under Dr. Emery R. Hayhurst, Columbus, Ohio.

Dr. R. G. Leland, Chicago, director of the Bureau of Medical Economics of the American Medical Association, was the guest of the St. Louis Medical Society at a special meeting February 18. Dr. Leland delivered an address on "The Present Status of Social Security in Relation to Medical Economics and Health Insurance." About three hundred members and guests were present.

The midwest sectional meeting of the American College of Surgeons will convene in Kansas City, Missouri, March 12 and 13, with headquarters at the Hotel President. The states included in this section are Missouri, Kansas, Arkansas, Iowa, Nebraska, Oklahoma and Colorado. Dr. Michael J. Owens, Kansas City, is chairman of the committee on local arrangements and Dr. James R. McVay, Kansas City, is secretary of the committee.

The spring symposium of the Kansas City Southwest Clinical Society will be held in the President Hotel, Kansas City, March 11. This session will precede the two-day meeting of the midwest section of the American College of Surgeons. The entire program will be given over to scientific sessions with presentations by members of the society and

guest speakers. Among guests who will address the session are Dr. Irvin Abell, Louisville; Dr. Frederic W. Bancroft, New York City, and Dr. Charles L. Scudder, Boston. There will be no registration fee.

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Billhuber-Knoll Corporation
Dilaudid Compound Tablets $\frac{1}{2}$ grain
Hoffmann-La Roche, Inc.
Alurate
Alurate Tablets, 1 grain
Elixir Alurate
Sodium Alurate
Capsules Sodium Alurate, $3\frac{1}{2}$ grains
Jensen-Salsbery Laboratories, Inc.
Diphtheria Toxoid, Alum Precipitated
(Refined)
Merck & Co., Inc.
Cebione-Merck
Ampules Cebione—Merck, 0.1 Gm.
Tablets Cebione—Merck, 0.01 Gm.
Wm. S. Merrell Co.
Diothane Ointment 1% Ophthalmic Tube
Frederick Stearns & Co.
Neo-Synephrin Hydrochloride Jelly
Winthrop Chemical Co., Inc.
Ampules 1% Isotonic Solution Tutocain
with Suprarenin, 1:20,000, 3 cc.
Tablets Alypin $\frac{1}{3}$ grain
Nonproprietary Articles
Cevitamic Acid
Aminoacetic Acid

The following product has been accepted for inclusion in the list of articles and brands accepted by the Council but not described in N. N. R. (New and Nonofficial Remedies, 1934, p. 443):
Merck & Co., Inc.
Creosote—Merck

The St. Louis Trudeau Club will meet March 7, at 8:30 p. m., in the amphitheater of Desloge Hospital, St. Louis. The program will consist of short addresses by members of the St. Louis University School of Medicine as follows: "Some Experience With Serum Treatments in Pneumonia," Dr. Ralph Kinsella. "Fungus Infection of the Lung," Dr. G. O. Broun. "Pleurisy With Effusion in Hodgkin's Disease," Dr. H. I. Spector. "Congenital Absence of the Right Lung," Dr. L. G. McCutcheon. "Calcifica-

tion of the Pleura," Dr. S. Tashma. "Bronchiolithiasis," Drs. C. Sullivan and E. Lee Myers. "Case of Unusual Lung Abscess," Dr. John Del Vecchio. "Pregnancy Complicating Pulmonary Tuberculosis," Drs. A. C. Henske and C. A. Ehlers. "Physiology of Pneumothorax," Dr. Joseph Devine. "Thoracoplasty in Pyopneumothorax," Dr. James L. Mudd. "Diabetes and Pulmonary Tuberculosis," Dr. Alphonse McMahon.

Discussion by Dr. L. C. Boisliniere.

Members of the medical profession are invited.

The American Neisserian Medical Society is extending invitations to become members to all qualified physicians who are engaged in some phase of the management of gonorrhea and who desire to work for improvement in the management of this disease. The society was founded on June 12, 1934, its purpose being the promotion of knowledge in all that relates to the gonococcus and gonococcal infections in order to attain improvement in their management and reduction in prevalence. There are one hundred fifteen charter members. The society plans to carry out the following program: (1) The scrutiny of the management of gonorrhea in both the male and female; (2) clinical and laboratory research in the diagnosis, medical and social pathology and the treatment of gonorrhea, and (3) dissemination among the medical profession and the public of authoritative information concerning gonorrhea. Dr. Oscar F. Cox, 475 Commonwealth Avenue, Boston, Massachusetts, is secretary.

OBITUARY

JACOB GEIGER, M.D.

Dr. Jacob Geiger, St. Joseph, was born in Obernau, Wertenberg, Germany, on July 25, 1848, and died December 8, 1934, at his residence. He came to this country in June, 1856, with his mother, sister and one of his brothers and located in Homer, Illinois, where he lived and attended school until 1858. He lived in St. Joseph from 1858 to 1860 when he returned to Homer and attended the Homer Academy. In the spring of 1867, after several moves, he moved back to St. Joseph and worked in a brother's store and attended business college in the evenings. At the same time he studied medicine under the supervision of Dr. Galen E. Bishop and on November 1, 1870, he took out a six months' license to practice medicine. On September 1, 1871, he entered the University of Louisville and in 1872 was graduated. On his return to St. Joseph he opened his office over his brother's store, later moving to an office adjoining the office of Dr. Galen E. Bishop.

In the fall of 1872 he was elected a member of the St. Joseph Medical Society and in 1878 was the society's president.

In 1879 Dr. Geiger and several other physicians organized the College of Physicians and Surgeons in which he occupied the chair of principles and practice of surgery. In 1884 he was chosen the fifth trustee of the Samuel Ensworth estate which was left by Samuel Ensworth for the erection of a hospital and for medical educational purposes. The Ensworth Hospital and Medical College was erected in 1889 and Dr. Geiger was elected dean in 1908. He continuously filled the chair of surgery in the medical colleges in St. Joseph from their beginning until they were closed in 1914.

Dr. Geiger was elected a member of the city council in 1884 and again in 1886 at which time he was elected its president. In 1885 he founded the St. Joseph Medical Herald. In 1887 he married Miss Louise Kolatz.

In 1888 he and several physicians of St. Louis organized the Marion-Sims College of Medicine and the first session of the school was held in 1890-91; Dr. Geiger was elected to the chair of principles and practice of surgery which position he occupied until 1911, at which time he tendered his resignation.

He was elected President of the Missouri State Medical Association in 1897. In 1913 Park College in Parkville conferred upon him the honorary degree of Doctor of Laws. He was admitted as a fellow of the American College of Surgeons in 1913 and in the same year he was elected a member of the Western Surgical Association and also became president of the Buchanan County Medical Society.

Dr. Geiger was the Republican nominee for Congress from the fourth district in 1916 but was defeated by Charles Booher, Savannah.

Dr. Geiger erected the St. Francis Hotel in 1912 and in 1918 he built the Leader Building.

He was a thirty-second degree Scottish rite and a Knight Templar Mason; a member of the Ancient and Arabic Order of the Nobel Mystic Shrine, and an elder of the First Presbyterian Church.

The Buchanan County Medical Society has lost one of the most ardent enthusiasts of the profession and his demise will be deeply felt by those who came in contact with him. Dr. Geiger was an untiring worker and a man of great ambition. He accomplished his aim in life by becoming one of the most able surgeons in the Middle West and by accumulating a fortune.

CHARLES G. GEIGER, M.D.

H. S. CONRAD, M.D.

C. H. WERNER, M.D.

Committee.



ALBERT JAMES WELCH, M.D.

Dr. Albert J. Welch, Kansas City, was one of the most highly respected and best known physicians in Western Missouri. He belonged truly to Kansas City by reason of forty years of service in and near its confines, and by reason of his identity throughout the greater part of his career with the life of Kansas City.

Born in Bremen, Ohio, in 1867, he pursued his elementary studies in the community in which he was brought up and studied medicine at Starling Medical College at Columbus. There he was graduated in 1894. The following year he moved to Kansas City where he resided ever since except for a tour of duty under Surgeon General Rupert Blue of the Public Health Service during the World War, and a postgraduate period in New York at the Polyclinic.

To his intimate friends he was fondly "A. J.," or "Andy." To his patients he was Dr. Welch, the kindly

physician, counsellor in time of sickness and distress, the optimist, the indefatigable worker in their behalf. He was intimately known by a small group of confreres who survive him at the top of medical organization in Jackson County and the State of Missouri. He was the respected president of Jackson County Medical Society in 1932, when more matters of importance to the Society came up than had come up at perhaps any other time in its history. He always held the confidence of his contemporaries as witness his election to the offices of treasurer of the Jackson County Medical Society, Councilor of the State Medical Association for this district and the numerous staff offices which he has held at St. Joseph Hospital in the thirty-five years or more he has been connected with that institution.

As a eulogy we cannot do better than to quote a poem dedicated to him in 1929 by Walt Filkin, and published in the *Journal Post*:

MY DOCTOR

By WALT FILKIN

(Dedicated to Dr. A. J. Welch)

My doctor is the kind of man
I like to write about.
He knows his p's and q's and such,
All say without a doubt.
He gives so little medicine
It makes the druggists swear.
Instead he uses smiles and laughs,
And spreads them everywhere.

In typhoid and pneumonia
He knows the magic tricks
Which get the patient up again;
No longer out of fix.
He is as modest as a lamb,
An unpretentious man.
I want to urge his standard for
The rest of all his clan.

Almost as many miracles
He has performed, some say,
As were declared in olden times
In some great prophet's day.
Such men as he deserve a crown
Of glory here on earth;
But lo! men wait till breath has fled
To estimate their worth.

Here is a cup of honor to
Those men who always heed
The urge to do the proper thing
When patients are in need.
Their names should be emblazoned well,
Indelibly on high.
They ought to have them done in gold,
Their deeds to testify.

(Copyright, 1929, by the *Journal-Post*.)

After a brief illness from pneumonia and a heart complication which cut short a week of busy routine, Dr. Welch died at St. Joseph's Hospital at 8:30 p. m., December 15, just ten days before he would have celebrated his thirty-eighth wedding anniversary with his devoted wife. On January 1 he would have been 68 years of age.

Funeral services were conducted by the Rev. Charles L. Debow at 3:00 p. m., December 17, at the Wagner Chapel in the presence of hosts of his friends and former patients. Burial was in Forest Hills Cemetery.

To his widow, Mrs. Anna June Summerfield Welch, whom he brought to Missouri as a bride, and to his son, our colleague, Albert Summerfield Welch, his wife, and the grandchildren, whom he loved so well, the profession of Kansas City extends its deepest sympathy.

E. P. H.—in the Jackson County Medical *Journal*.

EDWARD RICHTER, M.D.

On September 6, just as the shades of night were falling, the soul of Dr. Edward Richter was transported to that undiscovered country from whose bourne no traveller returns.

Dr. Richter was a man of character and a gentleman of the old school, kindly, courteous and the soul of integrity. As a member of his chosen profession he was always considerate of the welfare of his friends and associates.

A Republican, always interested in twelfth ward politics, Dr. Richter was elected to the original membership of the Board of Aldermen under the present charter, and was the father of the Richter Bill (City Ordinance No. 29,965, Section 4), which makes it a misdemeanor punishable by a fine or imprisonment to obtain charitable assistance by false representation. In 1920 he was elected coroner, serving four years; and it was during this tenure that he was presented with a diamond pointed gold star of office.

Dr. Richter received his education in St. Louis, graduating from the St. Louis College of Pharmacy in 1888, and from the Beaumont Medical College, a forerunner of St. Louis University School of Medicine in 1897, following which he practiced in Carondelet and the South Side generally where he made many friends and was admired by all. He was forced to retire from his practice four years ago following a cerebral hemorrhage, but remained the same friendly, lovable Dr. Richter.

He is survived by Mrs. Richter, a son, Edward W. Richter; two daughters, Mrs. Alex Marshall of Detroit, and Miss Helen; also by a sister, Mrs. Adelaide Wiese, and two brothers, William and Emil Richter.

He has departed "like one who wraps the drapery of his couch about him and lies down to pleasant dreams." E. J. S.—In the weekly *Bulletin* of the St. Louis Medical Society.

JOHN T. TUCKER, M.D.

Dr. John T. Tucker, St. Joseph, was born September 4, 1880, in Sullivan County, Missouri, and died October 7, 1934, in St. Joseph.

Dr. Tucker attended the public schools in Sullivan County and was graduated from the high school in Liberty. He received his medical education at the Ensforth Medical College in St. Joseph from which he was graduated in 1912.

He was a member of the King Hill Baptist Church. He was president of the Farmers State Bank of South St. Joseph for five years and was the first president of the South St. Joseph Chamber of Commerce.

Dr. Tucker made application to join the Army during the World War and was accepted two days before the Armistice was signed.

Dr. Tucker was a noble character; he was honest and upright in every respect. He was faithful to his calling—that of a physician. He was always fair in dealings with his fellow practitioners. He believed in never speaking ill of anyone. He was a Christian gentleman. If every member of the profession was as faithful and loyal as Dr. Tucker there would be nothing to fear for the future of this noble calling.

The Buchanan County Medical Society deeply regrets the death of one of its respected and esteemed members.

CHARLES GEIGER, M.D.

J. H. RYAN, M.D.

LEROI BECK, M.D.

Committee

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1935

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Ste. Genevieve County Medical Society,
December 12, 1934.

Chariton County Medical Society, Janu-
ary 3, 1935.

Perry County Medical Society, January 4,
1935.

Moniteau County Medical Society, Janu-
ary 10, 1935.

BATES COUNTY MEDICAL SOCIETY

The Bates County Medical Society met at the Court-
house in Butler, November 27, 1934, with Dr. G. A.
Delameter, Butler, presiding.

Dr. R. Lee Hoffmann, Kansas City, was the guest
speaker of the evening. His subject, "Transurethral
Resection for the Relief of Bladder Neck Obstruc-
tions," was greatly enjoyed. Roentgen ray films were
presented with the lecture. A vote of thanks was ex-
tended to Dr. Hoffmann by the Society.

The names of Drs. Charles A. Lusk, Jr., Butler, and
A. Graham Wooldridge were submitted for member-
ship and they were duly elected. Both of these phys-
icians have located in the county in the last year.

The question as to whether the Society should join
with Vernon-Cedar County Medical Society was dis-
cussed. A letter from Dr. E. J. Goodwin, Secretary,
was read regarding this matter, stating that it was
agreeable to the Association provided it was the de-
sire of the membership of both societies. A committee
composed of Drs. C. W. Luter, Butler; C. A. Lusk,
Sr., Butler, and R. H. Smith, Rich Hill, was appointed
to meet with the Vernon-Cedar County Medical So-
ciety at their next regular meeting to determine if a
tri-county organization could be arranged.

Election of officers for the ensuing year resulted in
the reelection of Dr. G. A. Delameter, Butler, as presi-
dent, and of Dr. R. H. Smith, Rich Hill, as secretary.

Visitors were Dr. B. O. Hartwell, Drexel, and Dr.
L. L. Smith, Ulrich.

R. H. SMITH, M.D., Secretary.

BUCHANAN COUNTY MEDICAL SOCIETY

The Buchanan County Medical Society met in the
Missouri Methodist Hospital January 2, Dr. E. F.
Cook, president, in the chair. Thirty-five members
were present.

Dr. W. T. Elam discussed the disposition of Dr.
Jacob Geiger's library and was informed by the chair
that Dr. C. H. Wallace, Sr., chairman of that com-
mittee, would have a report in a few weeks.

Dr. T. L. Howden, chairman of the program com-

mittee, reported that programs have been arranged for
the months of February, March, April and May.

The publicity committee, Dr. H. DeLamater, chair-
man, reported that the local press had been contacted
and that activities of the Society are to be published.

Following the reading of the report of the necrology
committee on the death of Dr. John I. Tucker the mo-
tion was passed that the resolution of the report be
adopted.

Dr. Samuel J. Freund was elected to active member-
ship and Dr. Marvin Morse, St. Joseph, was elected
to provisional membership.

The change in the by-laws (Chap. 8, section 6) as
published in the *Bulletin* for December 5, 1934, was
presented and defeated.

The amendment to change chapter 1, section 1, of
the by-laws to make honor membership effective at the
age of 70 instead of 65 together with an amendment to
this amendment that all those members now under 70
and now on the honor roll be returned to the active
roll if the original amendment passed were both de-
feated.

A proposed change in the by-laws regarding the
manner of election of officers was introduced by Dr.
W. T. Elam and read. A copy will be mailed to each
member.

An amendment reading as follows was presented:
"No amendment to these by-laws having been duly pro-
posed and defeated, nor any other amendment intended
to accomplish the same purpose as the defeated amend-
ment, shall again be proposed until one year has elapsed
since the date of defeat of the original amendment."
A copy of this amendment will be mailed to each
member.

Following the business meeting an interesting and
entertaining motion and sound picture entitled, "Be-
hind the Doors," was shown by a representative of
E. R. Squibb & Sons. It demonstrated graphically
the processes used in the manufacture of Squibb phar-
maceuticals.

O. EARL WHITSELL, M.D., Secretary.

CAPE GIRARDEAU COUNTY MEDICAL SOCIETY

The Cape Girardeau County Medical Society met in
the Chamber of Commerce rooms at Cape Girardeau,
January 14. Dr. D. I. L. Seabaugh, Jackson, president,
occupied the chair.

Members present were Drs. M. H. Shelby, N. F.
Chostner, J. H. Cochran, C. A. W. Zimmermann and
G. J. Tygett, Cape Girardeau, and Dr. D. I. L. Sea-
baugh, Jackson.

Dr. Seabaugh appointed a legislative committee with
Drs. Cochran, Tygett and Chostner as members. A
letter from the State Secretary, Dr. E. J. Goodwin,
pertaining to certain prospective bills affecting the
medical profession was read and an outline of the bills,
which had been enclosed, presented. By unanimous
vote the bills were referred to the legislative committee
for study.

Dr. Cochran moved and Dr. Shelby seconded a mo-
tion to dispense with the scientific program because of
the small number present.

C. A. W. ZIMMERMANN, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society held a dinner
meeting at the Connor Hotel in Joplin on January 8
with eighty-two members and guests present. The of-
ficers for 1935 were installed as follow: President, Dr.

W. S. Loveland, Joplin; vice president, Dr. J. L. Sims, Joplin; secretary, Dr. J. W. Hardy, Joplin; treasurer, Dr. H. D. McGaughey, Joplin; censors, Dr. L. B. Clinton, Carthage, and Dr. W. L. Post, Joplin.

Mr. John Flanigan, Carthage, presented the address of the evening.

Meeting of January 15

The Society was called to order with nine members present.

A letter from the State Association regarding proposed legislation on sickness insurance and antivivisection was presented. The president appointed Dr. L. C. Chenoweth, Joplin, to make a study of these proposed acts and present his conclusions at the next meeting.

Dr. Sam Grantham, Jr., Joplin, presented a case of a man 71 years old who seven years ago lifted an object and had a severe pain and swelling in the back of his leg. The mass gradually enlarged over this period and eventually broke down and discharged through a sinus. Roentgen ray showed a mass which appeared to be a cyst with calcium deposits in its walls. This was removed under spinal anesthesia. Examination revealed a multilocular cystic mass. Discussed by Dr. A. B. Clark, Joplin.

Dr. Sam Grantham, Sr., presented a case of a child with a fracture of the surgical neck of the humerus reduced by open method with autogenous graft. Discussed by Dr. W. S. Loveland, Joplin.

"Liability in the Treatment of Fractures" was discussed by Drs. W. S. Loveland, A. B. Clark and B. E. DeTar.

Meeting of January 29

The Society was called to order January 29 with twenty members present.

Mr. Wheeler, of the Joplin Retail Credit Bureau, was a guest and explained the work of the bureau and expressed a desire that the physicians make more use of it.

Dr. H. P. McGaughey, Joplin, read an article discussing whether or not a person should be told of his condition in the case of malignancy. He approved of the writer's viewpoint in telling the patients they had a malignant condition. Discussion by Dr. L. W. Baxter and Dr. J. W. Barson.

The paper of the evening was presented by Dr. Paul W. Walker, Joplin, on "Intravenous Urography for the General Practitioner." His paper was illustrated by roentgenograms. Discussion was by Dr. L. W. Baxter and Dr. R. E. Myers.

Meeting of February 5

The Society met with twenty members present.

Dr. Lloyd Clinton, Carthage, reported that a man is practicing in Jasper County without any apparent right to do so. He stated that he has not recorded his license to practice with the county clerk and that a report from the State Board of Health does not reveal any one by this name who holds a license to practice in the State of Missouri. He stated the man told the prosecuting attorney that he did not have a license to practice in Missouri at this time but did have verbal permission from the State Board to continue his practice until his license could be obtained. He is supposed to be a graduate of a German university and states he has passed the National Board in New York City. Dr. O. T. Blanke, Joplin, suggested that the board of censors write the man and obtain from him a written statement as to his intention. Dr. J. R. Kuhn, Joplin, moved that the secretary write a letter of protest to the prosecuting attorney requesting that he take some action concerning the matter. Seconded and carried.

Dr. Wm. M. Kinney, Joplin, presented a paper on "The Cause of Death in Nonvalvular Heart Disease," illustrated with gross and microscopic pathologic specimens. The paper was well received. Discussion was by Drs. A. M. Gregg, J. W. Barson, J. R. Kuhn, O. T. Blanke, Ed. James, and S. A. Grantham, Jr., Joplin; J. W. Douglas, Webb City, and L. B. Clinton, Carthage.

J. W. HARDY, M.D., Secretary.

NODAWAY COUNTY MEDICAL SOCIETY PRESIDENTIAL ADDRESS

Quintuplets

CHARLES D. HUMBERD, M.D.

Times like these make one wonder if after all schizophrenia really is not a most salubrious device invented by Mother Nature to meet untoward conditions when those conditions become unusually exacting. We can now look about us at the country doctor and see that a splitting of his personality has become absolutely necessary. For the successful practice of medicine today, two very dissimilar personalities must be combined in every "medico." On one hand we have the physician of history; he need be but an ordinary doctor who looks after the sick people of his community. The other half of his psyche must be a sort of super-auditor, statistician, blank-form-filler-outer, triple-entry-book-keeper, record-compiler, yours-of-the-umpsteenth-to-hand-letter-dictator, Paul Pry and Buttinski, who can satisfy the demands of the powers that be in providing grist for the mills of all the bureaus of vital statistics, the collaborating epidemiologists, the insurance people, the income tax agencies, the Workmen's Compensations offices, the social services and costs-of-medical-care organizations, and so on *ad infinitum*. One can surmise quite sourly just where this state of affairs is leading us.

A country doctor has recently proved his efficiency and merited a world-wide acclaim by bringing a whole set of premature quintuplets safely through perilous days into a normal babyhood. His stupendous feat makes the following quotation of current interest, since this record seems to have escaped notice in medical literature. Aulus Gellius wrote his "Noctes Atticae" ("Attic Nights") eighteen centuries ago. Book X, Chapter 2, reads, in translation, something like this:

The philosopher Aristotle has recorded that an Egyptian woman produced five children at one birth, the utmost limit, as he said, of human parturition, nor was it ever known that more than this number were born together, and this number, he says, is very unusual. But in the time of Augustus, the historians of those times relate a female servant of Caesar Augustus, in the province of Laurentum, brought forth five children. They lived a few days, and the mother died not long after she had been delivered. A monument of the fact was erected by the command of Augustus in the road leading to Laurentum, and the number of children she produced, which we have mentioned, was inscribed upon it.

Rev. W. Beloe, the first English commentator of Gellius (London, 1795) adds to this.

In the *Gentleman's Magazine* there is an account of a woman in Somersetshire who was delivered, in March, 1739, of four sons and one daughter, who were all christened and seemed healthy children. Dr. Garthshore received an account from Mr. Hull, surgeon at Blackbourne in Lancashire, of a woman who miscarried of five children in April, 1786, in the fifth month of her pregnancy; two of them only were born alive. They were sent to the Royal Society, and are preserved in the Museum of the late Mr. John Hunter. The account, with some ingenious observations on the subject of numerous births, is published in the *Transactions* of the Society for that year.

I have not verified these references.

The record of a case of quintuplets is published in the *American Medical and Surgical Bulletin*, New York,

10:267, 1896. These five male infants were born April 29, 1896, at Mayfield, Kentucky, and died five, twelve, thirteen, fourteen and fifteen days after birth. Each weighed between 4 and 5 pounds at birth; there was one placenta with five cords and five sacs. Their combined weight when born was $21\frac{3}{4}$ pounds, labor occurred at about $7\frac{1}{2}$ or 8 months with one head and four foot presentations. The births were about 15 minutes apart and the mother, Mrs. Elizabeth Lyon, survived. At the age of 77 years she recently paid a visit to Mrs. Elzire Dionne, mother of the living quintuplets, near Callendar, Ontario. The embalmed and mummified specimens of the Kentucky quintuplets were sent to the Army Medical Museum, Washington, D. C., in 1916, and were on exhibition there in my student days.

RANDOLPH-MONROE COUNTY MEDICAL SOCIETY

The Randolph-Monroe County Medical Society met January 8 at 8:30 p. m. in the Public Library, Moberly. The meeting was called to order by the president, Dr. C. C. Smith, Moberly.

Dr. Charles H. Dixon, Moberly, was elected censor for three years succeeding Dr. C. C. Smith whose term expired.

A motion was made and carried that the secretary write the American Red Cross headquarters and inform them of the unsatisfactory cooperation and attitude of the last three Red Cross nurses in Moberly. A motion was made and carried to permit the metropolitan health nurse to extend her nursing to include contagious diseases.

A talk on "Ringworm Infection of the Feet" was presented by Dr. M. E. Kaiser, Moberly. This was followed by a general discussion.

The remainder of the session was devoted to a discussion of the business affairs of the profession in the county.

Following the meeting a light lunch was served at Miller's Cafe and was enjoyed by all.

Members present were Drs. C. H. Dixon, F. L. McCormick, L. O. Nickell, C. C. Smith, T. S. Fleming, L. E. Huber, G. I. Allen, R. D. Streeter and M. E. Kaiser, Moberly.

M. E. KAISER, M.D., Secretary.

RAY COUNTY MEDICAL SOCIETY

The Ray County Medical Society met in the offices of Drs. L. D. Greene and T. F. Cook, at Richmond, January 29.

The following officers were elected: President, Dr. O. S. Pate, Orrick; vice president, Dr. I. E. Goldberg, Polo, and secretary-treasurer, Dr. G. W. Gaines, Richmond.

Those present were Drs. L. D. Greene, T. F. Cook, H. M. Griffith and G. W. Gaines, Richmond; I. E. Goldberg, Polo; O. S. Pate, Orrick, and Carl Reed, Hardin.

The outline for the year's work was discussed. It was decided that each member should present a paper for discussion, taking his turn as suggested by the president.

"For the Good of the Society" was discussed at length.

The next meeting will be held in the office of Dr. G. W. Gaines, Richmond, February 26. Members from neighboring societies are invited to attend the meetings.

G. W. GAINES, M.D., Secretary.

SOUTH CENTRAL COUNTIES MEDICAL SOCIETY

The South Central Counties Medical Society met at the Horton Hotel, Willow Springs, January 31, for dinner with the following members and visitors present: Drs. G. B. Forrest, Alton; F. A. Branes, Thayer; A. H. Thornburgh, P. D. Gum, J. W. Bingham, R. E. Hogan, E. C. Bohrer, E. R. Kerr, West Plains; D. D. Cox, Pomona; F. E. Ferrell, Mountain View; J. C. B. Davis, Willow Springs; R. A. Ryan, H. G. Frame, R. W. Denney, A. C. Ames and C. F. Green, Mountain Grove; L. F. VanNoy, Norwood, and C. C. Pflaum, R. S. Battersby and Dan G. Stine, Columbia.

The meeting was called to order by the president, Dr. J. C. B. Davis, Willow Springs.

Officers were elected as follows: President, Dr. D. D. Cox, Pomona; vice president, Dr. A. H. Thornburgh, West Plains; secretary-treasurer, Dr. A. C. Ames, Mountain Grove; delegate and alternate from Howell-Oregon, Dr. P. D. Gum, West Plains, and A. H. Thornburgh, West Plains; delegate and alternate from Texas County, Dr. L. M. Edens, Cabool, and Leslie Randall, Licking; delegate and alternate from Wright-Douglas, Dr. H. G. Frame, Mountain Grove, and Dr. R. W. Denney, Mountain Grove. A board of censors was left to the president for appointment.

A symposium on "Pneumonia" was presented as follows: Dr. C. C. Pflaum, Columbia, "Types, Etiology and Complications of Pneumonia"; Dr. R. S. Battersby, Columbia, "Pneumonia in the Child," and Dr. Dan G. Stine, Columbia, "The Diagnosis and Treatment of Pneumonia." New ideas were brought out, old ones refreshed and many questions were answered. All felt that it had been a very profitable evening.

A vote of thanks was given to the speakers.

A. C. AMES, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

13th Annual Meeting, Atlantic City, 1935

President, Mrs. Robert W. Tomlinson, Wilmington, Delaware.

President-Elect, Mrs. Rogers N. Herbert, Nashville, Tennessee.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

11th Annual Meeting, Excelsior Springs, May 7, 8, 1935

President, Mrs. William H. Goodson, Liberty.

President-Elect, Mrs. M. Pinson Neal, Columbia.

Adviser, Dr. J. F. Harrison, Mexico.

Directory County Presidents 1934-1935

| COUNTY | PRESIDENTS |
|---------------------|---|
| Boone..... | Mrs. M. D. Overholser 5 Blair Court, Columbia |
| Buchanan..... | Mrs. Owen W. D. Craig 3109 Jules St., St. Joseph |
| Callaway..... | Mrs. R. C. Fagley State Hospital No. 1, Fulton |
| Cape Girardeau..... | Mrs. Paul R. Williams 939 College Hill, Cape Girardeau |
| Cass..... | Mrs. T. W. Adair Archie |
| Clay..... | Mrs. C. H. Suddarth 415 E. Broadway, Excelsior Springs |
| Cole..... | Mrs. F. W. Gillham 310 Jackson, Jefferson City |

COUNTY

PRESIDENTS

| | |
|--------------------------|---|
| Gentry..... | Mrs. J. A. Crockett Stanberry |
| Greene..... | Mrs. W. S. Sewell 803 S. Florence, Springfield |
| Grundy..... | Mrs. E. A. Duffy 532 Pleasant View, Trenton |
| Jackson..... | Mrs. H. S. Valentine 5840 Grand, Kansas City |
| Jasper..... | Mrs. R. M. James 725 Porter, Joplin |
| Johnson..... | Mrs. W. R. Patterson 508 N. Holden, Warrensburg |
| Lafayette..... | Mrs. J. W. Horner Alma |
| Linn..... | Mrs. Ola Putnam Marceline |
| Livingston-Caldwell..... | Mrs. H. M. Grace 319 Tenth St., Chillicothe |
| Miller..... | Mrs. G. D. Walker Eldon |
| Randolph-Monroe.... | Mrs. C. C. Smith 820 West Coates St., Moberly |
| St. Louis..... | Mrs. Frederick S. Haeblerle 3206 Hebert St., St. Louis |
| St. Louis County.... | Mrs. John O'Connell Lackland Road, Overland |
| Saline..... | Mrs. L. S. James Blackburn |
| Vernon-Cedar..... | Mrs. W. L. Davis 3005 College, Nevada |
| 26th District..... | Mrs. G. W. Horrom 103 Rolla Street, Rolla |

Greeting from the State Auxiliary President

At the beginning of a new year and of the last half of our auxiliary year, it is fitting that we look over what has been accomplished and what yet remains to be done. A splendid start has been made but it will take work to keep up the high standard of other years and to go a bit farther. The chairmen are working hard; give them your heartiest cooperation.

Here are two or three suggestions. The first is that each auxiliary try to increase its membership. The number of women eligible is comparatively small; each one is needed, and even more important every woman needs the auxiliary. In no other group are the women bound by such close ties. They have the same joys, the same disappointments; the same petty vexations, the same constant demand upon their sympathies; the broad viewpoint that comes from close association with the most humanitarian profession. Membership in the Woman's Auxiliary gives each woman the "open sesame" to a circle of true friends.

Next, I suggest that we read more; that this year each member try to read at least one book along the line of her husband's profession. Among the new books are some excellent biographies of physicians; books of fiction with doctors as chief characters, and books which tell in nontechnical language of the development of medicine and the men who made it possible. In the latter group is "The Doctor in History" by Dr. Howard W. Haggard (Yale Press). It begins with the days of the dinosaurs and continues to the present. It gives the historical background and shows how the doctors have been affected by conditions and the part they have had in changing them. It is unusual and fascinating. Another delightful new book is "Dr. Thinkright," by Clarence Hawkes (Crowell and Co.). The book is short and in its human appeal reminds one much of Dickens' "Christmas Carol."

Last, that we try not only to serve the doctors but in some way to honor them. It is most important that we make a success of the essay contest. Each auxiliary should try to have a contest if only one essay is written. The very subject helps people to realize that the doctors have contributed to progress. From an auxiliary in Georgia comes the suggestion that each year there shall be observed "Doctors' Day," a day when all

doctors living or dead shall be honored for their unselfish work. The day suggested is March 30, the day upon which Dr. Crawford Long of Georgia first used ether as an anesthetic.

I wish each of you personally and each auxiliary a happy new year filled with worth-while, constructive things.

LUELLA H. GOODSON, President.

BOOK REVIEWS

LABORATORY MEDICINE. A guide for students and practitioners. By Daniel Nicholson, M.D., member of the Royal College of Physicians, London, etc. Second edition, thoroughly revised. Illustrated with 124 engravings and three colored plates. Philadelphia: Lea & Febiger, 1934. Price \$6.50.

When the first edition of this book appeared a few years ago favorable comment was given the unique and pleasing manner in which the material was arranged. It was something new and helpful in laboratory textbooks. The same manner of arrangement is to be commended in the present edition and will save half the time of the laboratory worker, and especially the occasional laboratory worker, who wishes to consult a manual for a given laboratory procedure.

This edition is brought up to the minute by the addition of many new laboratory tests and extension of others. The book can be recommended as complete and well arranged.

R. L. T.

TREATMENT OF THE COMMONER DISEASES MET WITH BY THE GENERAL PRACTITIONER. By Lewellys F. Barker, M.D., Professor Emeritus of Medicine, Johns Hopkins University; Visiting Physician, Johns Hopkins Hospital, Baltimore, Maryland. Philadelphia: J. B. Lippincott Co.

This is a book based upon ten lectures delivered by the author and is intended as an aid for the general practitioner to meet his many problems. Dr. Barker's resumé on the treatment of the commoner fevers is excellent.

Chapters are devoted to the disorders of the circulatory system and the blood-forming organs. Following these the commoner disturbances of the digestive system are fully covered. Also, of special interest are the chapters on the commoner diseases of metabolism and endocrine disturbances.

The extensive bibliographies found in the footnotes are excellent and up-to-date, and the volume is recommended to the old and young physician alike.

E. E. W.

CASE STUDIES IN THE PSYCHOPATHOLOGY OF CRIME. By Ben Karpman, M.D., Psychotherapist, St. Elizabeths Hospital, Washington, D. C.; Professor of Psychiatry, School of Medicine, Howard University, Washington, D.C. Volume I and IV. Washington, D.C.: The Mimeoform Press.

In these studies Dr. Karpman has shown infinite pains and deep insight into the lives of five persons but it is questionable whether any conclusions drawn from such a small group even intensively studied and extensively reported can carry much weight. In the multitude which comes for review we will here and there be helped by Dr. Karpman's studies and his methods of approach. Dr. Karpman is to be commended for his extraordinary patience.

M. A. B.

ACUTE INTESTINAL OBSTRUCTION. By Monroe A. McIver, M.D., Surgeon-in-Chief, Mary Imogene Bassett Hospital, Cooperstown, N. Y. 62 illustrations. New York: Paul B. Hoeber. 1934. Price \$7.50.

Dr. McIver's monograph on "Acute Intestinal Obstruction" has presented the subject in a most excellent manner. The review of the literature is quite complete. The book is destined to be a classic on the subject.

T. G. O.

THE MANAGEMENT OF FRACTURES, DISLOCATIONS, AND SPRAINS. By John Albert Key, B.S., M.D., Clinical Professor of Orthopedic Surgery, Washington University School of Medicine, etc., and H. Earle Conwell, M.D., F.A.C.S., Orthopedic Surgeon for the Tennessee Coal, Iron and Railroad Company, Birmingham, Alabama, etc. With 1165 illustrations. St. Louis: The C. V. Mosby Company. 1934. Price \$15.00.

This volume of 1164 pages, with 1165 illustrations, is printed upon the best quality gloss paper, and is cloth bound. After a close survey of the work from cover to cover it appears to be worth every cent of the \$15.00 charged by the publishers.

The value of this book to the student, the general practitioner and the surgeon is enhanced by the addition of a chapter on "Fractures of the Jaws and Related Bones of the Face," by Dr. James B. Brown, associate of Dr. Vilray P. Blair at Washington University, St. Louis. Recognizing the fact that a certain proportion of injuries to the maxillae, the nose and the teeth will come under the care of general practitioners and general surgeons, the author of this chapter has successfully endeavored to outline as simple and as rational a technic as is consistent with sound treatment.

Rounding out the work and making it indeed an outstanding text on traumatic surgery, is the chapter dealing with "Fractures of the Skull and Brain Trauma" by the late Charles Edward Dowman. By the addition of this chapter with its wealth of information on neurological surgery, the practitioner has readily at hand a guide to the emergency and subsequent treatment of practically all types of trauma arising out of all too frequent highway accidents, the accidents of industry and those incident to sport.

Recognizing the vicissitudes of the surgeon caring for fractures and his constant subjection to the threat of lawsuits a chapter has been included dealing with the "Medicolegal Aspects of Fracture Cases."

One of the most valuable features of the book to one seeking graphic and readily understood information on any fracture or dislocation is the wealth of illustrations with the succinct legends. In each instance the illustration, be it of a patient in a muslin hammock or of a roentgenogram depicting conditions before and after treatment, carries beneath it an epitome of the case which is both convenient and enlightening. The patients, being largely Negroes, much is added to the value of illustrations of dressing by reason of the color contrasts.

The work is divided into two parts, viz: "Principles and General Considerations" and the "Diagnosis and Treatment of Specific Injuries." The former goes into the matter of equipment, plaster of paris technic, classification of fractures, first aid, principles of treatment and complications. In this section too is included a chapter on the workmen's compensation law as it affects fracture cases. The second part of the volume, in keeping with the orderly presentation of the subject in general, begins with skull fracture and ends with fractures and dislocations of the toes.

No attempt is made to include elaborate illustrations depicting operative technic, the highly technical operations being briefly described in the text, and the simpler operations being shown quite adequately by means of drawings. The authors have taken freely from the current literature of America and to some extent of Europe. There is an obvious avoidance of the inclusion of certain procedures still considered experimental, but there is no hesitancy in recommending others the ultimate worth we may not know for years but which the authors feel to be sound. Böhler's technic in the treatment of fractures of the thigh is not gone into; instead, the procedures recommended are: (1) Skeletal and skin traction and the Thomas splint; (2) the Russell method; (3) the Hodgen splint, and (4) the Hoke traction apparatus. They point out the advantages of skeletal traction as being more efficient and reliable and more comfortable to the patient, as permitting free motion of the knee and allowing access to the soft parts and the fracture site for inspection, dressing and other purposes. The disadvantages they feel to be the need of local or general anesthesia and the fact that "there is always a certain danger of infection." They admit that the danger of infection is negligible if rigid asepsis is practiced and wire traction is used.

Closed reduction is always the choice where success seems reasonably assured, but where indicated open reduction with the least possible trauma and a minimum of foreign material is recommended. The Whitman technic in hip fractures seems to be first choice with the authors but they have added in detail the very valuable maneuver of Ledbetter as an adjunct in aligning the fragments. The use of the Smith-Peterson three-flanged nail is fully discussed and its use recommended in carefully selected cases.

On the whole this volume would be a valuable addition to the library of the general practitioner and the general surgeon, an indispensable guide to the industrial surgeon and a boon to the student who learns best through graphic representation.

E. P. H.

TREATMENT IN GENERAL PRACTICE. By Harry Beckman, M.D., Professor of Pharmacology at Marquette University School of Medicine, Milwaukee, Wisconsin. Second edition, revised and entirely reset. Philadelphia and London: W. B. Saunders Company. 1934. Price \$10.00.

The title of this choice piece of medical reference literature by no means conveys an adequate connotation of its brilliant content. A physiologist and pharmacologist with the gift of lucid penmanship and with an apparent understanding of clinical medicine has given the medical profession a book of therapeutics such as could be expected from an author with such qualifications.

The author's bibliography is quite large and fairly well covers international medicine in its scope. There are over two thousand journals and textbooks used as reference, a complete list being furnished in the addenda. There are liberal quotations from various authorities on the treatment of disease where such quotations lend emphasis, but the comments from the critical and judicial mind of the author are constantly in control of the material in the book and seem authoritative and convincing. Therapeutics and clinical ideas are up to date covering work reported late in the year 1933 and the index is complete in detail.

For those who want a convenient and reliable reference at hand this is an admirable text, and to anyone interested in clinical medicine this book will be found to contain hours of profitable reading.

P. K. W.

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A NEW ELECTRODE FOR CONIZATION OF THE CERVIX

ROBERT J. CROSSEN, M.D.
ST. LOUIS

Chronic cervicitis is one of the most frequent gynecological diseases and has long been one of the hardest to cure. The treatment has gone through many phases all of which have added something of value in affecting a cure.

Mild erosions are sometimes cleared up by astringent applications or douches but more extensive cases are not cured in this way. When one understands the pathology of this condition it is easy to see why this is true. The vaginal portion of the cervix is lined by squamous epithelium which in the normal cervix merges at the external os into the single layered columnar epithelium lining of the cervical canal. This single layered columnar epithelium sends branches into the underlying muscle forming racemose glands which secrete a mucoid substance.

In infections of the cervix the infected discharge flowing over the cervix causes a condition called erosion. In this condition the lining of the cervical canal grows down covering the area usually occupied by squamous epithelium. Branched glands are formed in this area by down growth of the single layered epithelium. This delicate epithelium which is now exposed to the vaginal discharges is unable to withstand them very long and is hence replaced by squamous epithelium again leaving the glands buried in the muscle. The squamous epithelium at this stage covers over the buried infected glands which continue to excrete mucus though they now have no ducts. These glands swell, forming cysts or they burst through the squamous epithelium or form an abscess and ulcerate through; and

the whole process is repeated. This battle between the squamous and the columnar epithelium continues until spontaneous cure occurs as a result of the filling in of the glands by squamous epithelium or until the infected tissue including the glands is removed.

This process is spoken of as endocervicitis; but, as will be seen, not only the epithelial lining and the glands are involved but also the underlying muscle. A better term is chronic cervicitis. Treatment to be successful must remove the infected tissue without causing serious sequelae, immediate or remote.

Dr. Dickson's procedure of linear cauterization was a definite step in advance of the Collin's cautery. This procedure is especially helpful in cases of slight erosion and eversion; but in the more extreme chronic cases the method leaves much to be desired.

Coagulation was and in some circles still is a much heralded method. But any one who has observed the severe hemorrhages, infection and strictures following this technic realizes that it is anything but ideal.

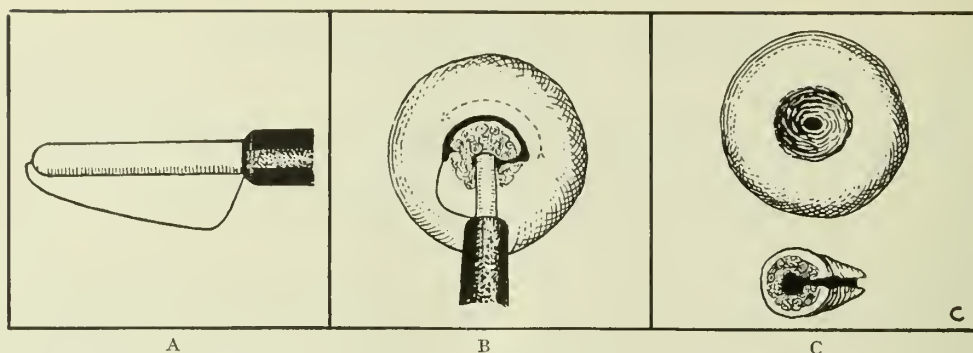
In 1927 Dr. Mortimer Hyams in an article entitled "A New Instrument for Excision of the Diseased Endocervix" described the method of coning out the endocervix by means of a special electrode designed by him to be used with a cutting current.

It is entirely due to his persistent and painstaking effort that this method has now become recognized as one of the best methods for treating most cases of chronic cervicitis. He emphasized in his article that the cases must be selected and that conization was not a cure for every case of chronic endocervicitis. He states that his technic is not applicable in cases of marked eversion in which the Sturmdorf operation is still the treatment of choice.

In 1932 after reading Dr. Hyams' article and having personal correspondence with him I became convinced that his procedure

Presented before the St. Louis Gynecological Society February 8, 1935.

From the Department of Obstetrics and Gynecology Washington University School of Medicine, St. Louis.



A. Electrode. B. Electrode in cervix and conization half completed. C. Cervix showing conical cavity and tissue which has been removed.

was a definite step ahead in the treatment of this troublesome condition so I began using it in the office. Before long it became evident that, although the Hyams' electrode worked well in nulliparous cases, it was not entirely satisfactory in cases where there was an extensive erosion or eversion with numerous deep seated cysts. The cutting wire on the Hyams' electrode was too close to the central silicon tube to allow the removal of a good sized cone of tissue including all the infected area. In order to overcome this difficulty there was a need for a different type of electrode. At that time I drew some sketches of the electrode I desired for trial, wrote to various diathermy companies and searched numerous diathermy catalogues trying to find one like it, but found none.

Mr. P. D. Wasserott, president of the High Tension Corp., of New York, offered to make up several types according to the specifications on my sketches. After experimenting with several types the electrode shown here was found to accomplish best the object for which I was striving.

As will be seen from the sketch, this type of conization is considerably more extensive than the type used by Hyams and it was with trepidation that I attempted the first conization as I expected considerably more bleeding than with the Hyams' technic. Much to my surprise and satisfaction a large conical piece of tissue could be removed without appreciable bleeding.

By experimentation it was found that the optimum current on the High Tension Corp. unit was delivered with the dial set at medium and the marker at 45 on the scale.

Since 1934 sixteen members of the gynecological staff of Washington University have been using this technic. In all eighty cases have been done in Barnes Hospital under twilight analgesia. In addition, I have done a number of cases in the office. As yet I

have been unable to make the procedure entirely painless when done in the office. I am now trying a new nontoxic topical anesthesia which I hope will be satisfactory. Dr. Hyams uses 50 per cent cocaine solution or a crystal of cocaine in the cervical canal and has had no unfavorable reaction.

The procedure is similar to that described by Hyams in his various articles. The patient is placed on the table as for vaginal examination with the moistened indifferent electrode attached to her thigh. A bivalve speculum is inserted into the vagina exposing the cervix. The cervix is cleaned with green soap and a cotton swab moistened with some suitable antiseptic is inserted into the cervical canal. The length of the cervical canal is then measured and the proper sized electrode selected. When topical anesthesia is to be used it is placed in the canal and left there for five minutes before proceeding with the conization. A cutting unit with a smooth fine current should be used; not all cutting machines are satisfactory. The electrode is placed in the distal end of the regular universal handle. This handle has a swivel joint at the proximal end. The foot switch is used to initiate cutting at the proper moment. The point of the active electrode is placed in contact with the cervix so that the silicon tube will go into the cervical canal as the cutting proceeds. The foot switch is then closed and the electrode introduced into the canal to the desired depth, previously determined by sounding. The inner end of the electrode should stop just short of the internal os. It is well to release the foot switch at this time and prepare to revolve the electrode through a complete circle. The fixed portion of the handle is held in the left hand and the movable distal portion is revolved while the cutting current is on. These electrodes are easily broken if used incorrectly so one should be sure the current is on before be-

ginning rotation. After complete rotation a conical plug of tissue comes out with the electrode. If it is necessary to remove more tissue, or a cyst, this can easily be done with the same electrode. After the procedure is completed a one fourth inch gauze drain soaked in a solution of 1 per cent neutral acriflavine and glycerine is inserted into the conical area to control oozing. It is not necessary or wise to coagulate the surface. The only unfavorable sequelae I have seen have been in cases where additional coagulation was done.

The after care consists of mild antiseptic douches daily. The patient should limit her activities for a week and be observed every week for at least a month. In four weeks the cervix is usually completely healed. Dr. Hyams advises against douches but I have noticed that these patients have a slight discharge for about two weeks to which they object if not allowed to use douches.

ADVANTAGES OF THIS TECHNIC OVER COAGULATION

1. Instead of coagulating the tissue and leaving a necrotic infected piece of tissue to slough out over a period of six to ten weeks, it removes cleanly and with a minimum of coagulation the area of infected tissue.

2. This tissue is saved for microscopic examination. Two unsuspected early carcinomas were diagnosed in this way in our series. With coagulation a biopsy can be removed before coagulating, but all of the destroyed tissue should be examined to exclude carcinoma. The tissue at the circular junction of the squamous and columnar is entirely removed by this electrode. This is the area where carcinoma is most likely to start and a single biopsy only includes a small segment of this area.

3. In our cases there has been no alarming bleeding and no infection. In some cases I have seen following coagulation there have been pelvic abscesses requiring drainage and also hemorrhages requiring several transfusions. And these cases were done by an ardent advocate of coagulation.

4. Strictures so common after coagulation rarely occur with conization if the proper current and technic are employed. Additional coagulation may cause strictures if used in combination with conization.

THE ADVANTAGES OF THIS TECHNIC OVER THE HYAMS' TECHNIC

1. It enables one to remove all the infected tissue about the external os, including cysts extending outward at the surface.

2. It gives a larger piece of tissue for pathologic diagnosis. Also, the specimen includes the area where the columnar epithelium of the erosion extending outward meets the squamous epithelium which is the area where carcinoma is most likely to start.

3. It extends the hemostatic cutting-current excision to a large group of cases formerly considered too extensive for it. These may be divided into two classes. The first class includes the cases with moderate laceration and eversion in which taking some extra turns with the cutting wire removes the outlying affected tissue still with preservation of the cone-shaped cavity which will heal rapidly with good inversion. The second class includes the cases with very extensive laceration and infiltration and eversion. In these the extra excisions with the wire loop extend far out, leaving an almost flat surface. In these very extensive cases it seemed to me that healing and inversion might both be facilitated by folding in the outer margins with an anterior and posterior Sturmdorf suture. I have so handled some cases and am watching the results with interest. If this hemostatic wire loop excision combined with Sturmdorf sutures works out well it will simplify conical excision of the cervix by eliminating the troublesome bleeding and reducing the sutures to two. Lateral sutures combined with central conization has also been done in cases with deep lateral tears.

The best time to do this procedure is four to seven days after the period is over; this gives time for the healing to be well on the way before the onset of the next period.

Patients who have had frequent irregular bleeding from higher in the uterus before conization will very likely continue to have it after conization, so care must be taken not to blame this bleeding on conization.

This procedure has been done in combination with abdominal operations, including supravaginal hysterectomy where the cervix could not be removed, cystoceles, perineorrhaphy and curettage, with excellent results. In one case where a stem pessary was placed there was some bleeding when it was removed ten days later but two tampons controlled the bleeding satisfactorily. It is very easy for one man to become biased and over enthusiastic about his pet procedure so I feel that this series is doubly valuable because there were sixteen men using this technic. The physician making the follow-up examination on the Washington University dispensary cases was usually one

who had not done the operation so these reports were not prejudiced.

I had in mind calling this a modified Hyams' electrode as it is an electrode for extending the application of the principle of the hemostatic-cutting-current excision in the cervix which principle Dr. Hyams has so admirably presented; but in studying his articles I find that he objects rather strenuously to having any electrode called a modification of his which does not conform to the original specifications, viz., one eighth inch in width and removing endocervical mucosa only. He states, "Conization has for its object the eradication and destruction of diseased endocervical mucous membrane and its contained glandular structures, and this is accomplished with the preservation of the underlying muscle as well as the uninvolved tissue"; and further, "The instrument used must conform to the anatomical contour and length of the cervical canal and the histological character of the lining membrane which is one eighth in depth and rests on the basement membrane. Modifications of the Hyams' electrode have been devised which do not duplicate the original specifications." His technical illustrations also stress the limitation of the excision to within the cervical canal.

As previously explained, the electrode presented was devised definitely to go beyond these limitations and remove the involved tissue farther out.

I feel as I stated in the beginning of the article that the muscular tissue is infected as well as the glands and the epithelial lining of the cervical canal. It is necessary to go much deeper in the cervical tissue than the Hyams' electrode does to eradicate the disease in most cases of chronic cervicitis.

SUMMARY

A new electrode for conization of the cervix with a cutting current is presented. It permits the treatment of more extensive cases of chronic cervicitis than does the Hyams' electrode. Its use in eighty cases done by sixteen different members of a gynecological service of Washington University over a period of two years shows it to be safe and effective. It removes the entire junction of the squamous and columnar epithelium where carcinoma is most likely to start, thereby giving a better specimen for diagnosis of early carcinoma. By removing this chronic infected tissue it becomes an important factor in the prevention of cervical carcinoma. It is hoped that by combining conization with an anterior

and posterior Sturmdorf suture, the cases with extensive eversion ordinarily requiring a Sturmdorf operation can be done with much greater facility. The cases thus handled are as yet insufficient in number to justify conclusions as to the value of this combined technic. The cutting current eliminates the bleeding which is a troublesome feature of the Sturmdorf operation.

University Club Building.

BIBLIOGRAPHY

1. Hyams, Mortimer N.: New Instrument for Excision of Diseased Endocervix With Surgical Diathermy, New York State J. Med. **28**:646, 1928.
2. Hyams, Mortimer N.: High Frequency Current in Treatment of Chronic Endocervicitis (Conization of Cervix), Arch. Physical Therapy **11**:171-179 (April) 1930.
3. Hyams, Mortimer N.: Conization of Uterine Cervix, Am. J. Obst. & Gynec. **25**:653-661 (May) 1933.

A MUNICIPAL PROGRAM FOR THE CONTROL OF TUBERCULOSIS

H. I. SPECTOR, M.D.

ST. LOUIS

The control of tuberculosis is primarily the responsibility of any local official health agency, and the latter should not only attempt to estimate the tuberculosis problem in its respective community, but with the aid of the local medical society and existing voluntary agencies should attempt its solution.

The Framingham demonstration indicated that there were nine active and nine arrested cases of tuberculosis existing for each annual death. This ratio is believed by some to be too high; a more conservative estimate is five known cases for each annual death. It has been ascertained that there are usually three contacts for each active case. It may therefore be concluded that the tuberculosis problem in a community concerns roughly twenty-one people for each annual death, viz.: the known case, five active cases and fifteen contacts. As a result of this conclusion all plans designed for the control of tuberculosis must hinge on the open case and on the contact case. It is almost needless to point out that the larger the community the more complex will be the machinery for the control of tuberculosis and the smaller the community the simpler it will be; but it should be borne in mind that the essentials of control are the same in both instances.

Certain legislative measures are indispen-

From the St. Louis Health Department, Tuberculosis Division.

Read at the 77th Annual Meeting of the Missouri State Medical Association, St. Joseph, May 7-10, 1934.

sable for the development and execution of a tuberculosis control program. For instance, in the larger cities and in some states it has been deemed advisable to establish a separate bureau of tuberculosis under the city or state health departments respectively. Where and when practical therefore it is recommended that the first legislative measures in regard to tuberculosis control should provide for the creation of a similar bureau to be directed by a physician who has had special training in diseases of the chest, particularly tuberculosis. The supervisor of this bureau should also be public health minded. Laws should be passed requiring physicians, hospitals, sanatoria, clinics, undertakers and coroners to report their cases to the local health officers, since knowledge of the source of infection is the first step in the plans for successful case finding. Legislation for the purpose of controlling the recalcitrant individual is also necessary.

CASE FINDING

Facilities must be made available for finding the active case of tuberculosis. Incidentally, the family physician plays a great part in this respect since it is he who sees the patient first and can then report the case immediately to the health department. However, it is the dispensary which is unquestionably the essential prophylactic and diagnostic single agency in the control of tuberculosis inasmuch as it can be utilized for case finding, diagnosis and teaching purposes. It is in the dispensary or chest clinic that many indigent open cases of tuberculosis are first recognized. The chest clinic should be the chief center of activity as far as prophylaxis and diagnosis are concerned. Simple but adequate records should be kept of every diagnosed case and every contact should be examined. Active cases should be carried in the active files until death, recovery or removal from the community.

Of almost equal importance as far as case finding is concerned is the follow-up work and home visiting by public health nurses. In addition to teaching the tuberculous individual and his family the importance of personal hygiene and preventive methods in general, the public health nurse by urging the necessity of contact examinations aids in finding the original source of infection, which may eventually prove to be a relative, servant or friend. Thus with her work the public health nurse assists in discovering those who have been infected but do not as yet have clinical disease and those who have

not as yet been infected. To carry out this program a field nursing service is required which should consist of an adequate number of well trained public health nurses.

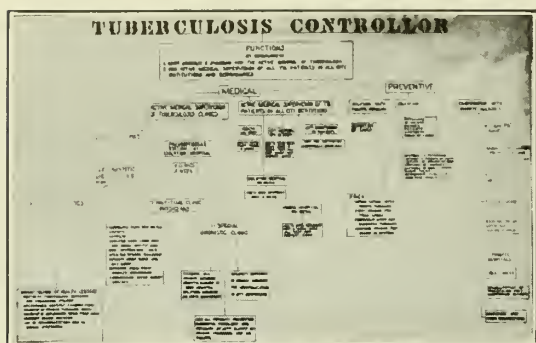
It is obvious that to execute this portion of the control program it is necessary for a community to provide funds for the employment of nurses, physicians, clerks and for rental of space for dispensaries. The number of nurses required in a given community will of course depend upon the individual needs of that community. An adequate field nursing service as outlined by the American Public Health Association is one that can average five thousand home visits per one hundred annual deaths.

Home visiting by municipal public health nurses will not infrequently lead to the discovery of other open cases in the same family needing treatment in sanatoria. In addition, many contacts might be discovered who will need observation in the chest clinic, while others may be found who will need further observation in preventoria, while still others may be found who need the care provided in open-air schools. It is self-evident that no municipal program is complete without provisions for preventoria and open-air schools. In St. Louis the residential open-air schools and the Night and Day Camp, which are preventoria, are under the direct supervision of the tuberculosis society. The open-air schools are a part of the school system and are under the supervision of the hygiene department of the school board.

FACILITIES FOR HOSPITALIZATION

The community is also called upon to assume the responsibility for treatment and isolation of the indigent active case of phthisis. The municipality must therefore provide sanatoria with an adequate number of beds for the hospitalization of those desiring and needing sanatorium treatment. The number of beds necessary in a given community will depend upon the size of the municipality and the number of deaths. It is generally stated that for every annual death from tuberculosis a bed should be provided for the hospitalization of a tuberculous patient. The writer wishes to assert emphatically that this ratio is decidedly too low. In St. Louis, for example, we now have a bed capacity of 670 for tuberculous patients in municipal and private sanatoria. Our mortality for 1933 was 632 or a ratio of more than one bed per death and yet we have today a waiting list of 225.

It is obvious that the essentials of a control



program consist of three major activities, as follows:

(1) Case finding which is accomplished through the mediums of the private physicians who report their cases and the public health nurses who urge contact examination.

(2) Examination and prolonged observation of contacts of tuberculous patients which is accomplished through the medium of the chest clinics.

(3) Isolation and treatment of the open cases in sanatoria as well as treatment of certain infected contacts in preventoria or open-air schools.

There are other activities that should be included in an effective control program; for instance, the rehabilitation of the tuberculous individual after an arrestment of the disease is accomplished, should be considered. This phase of control is generally neglected despite the fact that it plays a significant part in the prevention of tuberculosis. Due to economic reasons or because of improper guidance many discharged tuberculous individuals accept unsuitable employment and develop a relapse of the disease within a short time after their discharge from the sanatorium and for a second time may become a menace to the community. Follow-up work in homes of discharged tuberculous individuals is of great importance for this very reason.

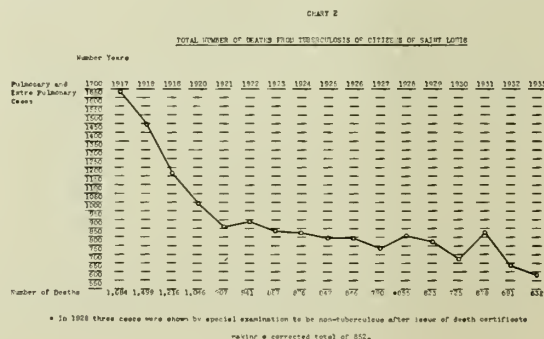
EDUCATION

A great deal can be accomplished in a prophylactic way in the homes of tuberculous patients through education and through the medium of the nurses. The social and economic needs of a tuberculous family must be considered since tuberculosis usually goes hand in hand with poverty, poor ventilation, malnutrition and poor hygiene in general. The proper nourishment of contact children must be carried out with the help of the various charitable and social agencies if necessary.

Other educational methods to be employed are: (1) Education of the physician in the early diagnosis of the disease. In St. Louis we have in the last two years held clinical conferences for the general practitioner in the diagnosis and treatment of tuberculosis. These conferences have proved distinctly successful and worth while; to date 146 physicians have attended these conferences. (2) Education of the public in the importance of periodic health examinations in general will lead to the discovery of additional early cases. Since early tuberculosis may be present without perceptible symptoms it is evident that some incipient cases will manifest themselves only after a routine examination of the chest has been made. Education of the public can best be accomplished through the channels of the radio, newspapers and public lectures. Tuberculin testing in the schools will often lead to the discovery of potential cases of tuberculosis. Lectures on tuberculosis to the students of medical schools, nursing schools, high schools and colleges will undoubtedly contribute in controlling this disease.

INDUSTRIAL PROPHYLAXIS

Tuberculosis cannot be classed as an occupational disease despite the fact that it is prevalent among working people. The reason for the high incidence of the disease in certain industries is because some industries have a silicious environment which induces the inhalation of silica over a prolonged period of time. Silicon dioxide when inhaled into the lungs in great concentration over a prolonged period of time will have a deleterious effect on the health of the workers. Efforts should be made by the official agencies to pass sanitary laws to safeguard employes working under unhealthful conditions. On the whole, raising the standard of living of the members of a community tends to increase their resistance against this disease.



THE ST. LOUIS PLAN OF CONTROL

It is interesting to mention here that the agency responsible for the control of tuberculosis varies in different communities. In some communities the tuberculosis association takes the lead as, for instance, in Minneapolis, while in other communities the official agency takes the lead, as in Detroit and Chicago. In St. Louis the official agency likewise takes the lead but the responsibility for the control of tuberculosis is vested in the Tuberculosis Controller who directs the preventive and medical work of the city. By ordinance provision the Tuberculosis Controller has a dual function: first, to plan a program for the control of tuberculosis; and, second, to have active medical direction of all tuberculosis cases in the city institutions and particularly at Koch Hospital, the municipal sanatorium, as well as active medical supervision of all chest clinics of which there are twenty-nine. Chart 1 reveals the St. Louis plan for the control of tuberculosis in detail while chart 2 shows the drop in mortality for the years 1917 to 1934.

In order to test the efficiency of certain methods in the control of the disease comparative statistics are necessary. Comparative statistics should include mortality and incidence rate by color, sex and age; also by stage of disease. The results of any control program should be appraised by applying the appraisal system of the American Public Health Association which is a guide and check on the effectiveness of the various methods employed in the control program.

CONCLUSION

In conclusion the writer wishes to enumerate a list of well established facts around which all programs for the control and prevention of tuberculosis should be woven, viz.:

- (1) That tuberculosis is an infectious and communicable disease.
- (2) That tuberculosis is a family disease and affects children, particularly young adults.
- (3) That factors which repeatedly tend to lower the resistance of the infected individual will lead to clinical tuberculosis.
- (4) That the pivot of any control program is the open case of tuberculosis.
- (5) That the dispensary, the home of the tuberculous patient, and the sanatorium are the battlefields upon which the war against the disease must be waged.
- (6) Finally, that the control of the disease should begin with the observation of the infant in the cradle, continued through early childhood, meticulously carried on during the adolescent period and through the early adult years until such time as the danger of the development of clinical disease becomes a remote pos-

sibility; for we must never lose sight of the fact that the chronic active case of tuberculosis of tomorrow will be recruited from the infected child of today.

University Club Building.

DISCUSSION

DR. HERBERT L. MANTZ, Kansas City: There is very little that can be added to a paper such as Dr. Spector has read. Everyone knows the work that has been done in St. Louis and his outline makes it very clear.

I have several ideas about the control of early tuberculosis. I do not believe we can ever do things which will be of lasting character unless the general practitioner is interested. We may use all the force and compulsion we have, but eventually we may go into state medicine where these things have to be done by state agencies. I do not know, but it looks as if we were tending that way right now. On the other hand, I maintain that if we really get out and interest our general practitioners in doing tuberculosis work we will not have to have so many clinics. I am glad to hear they have a school of instruction in St. Louis, and apparently they are getting results.

The average practitioner of medicine does not see many cases of tuberculosis in a year; perhaps two or three, and when he does see them they are far advanced; he does not recognize them in the early stages. The thing to do is to get these men to comb their practice. The tuberculin reaction is simple, anyone can do it, and it would probably be better for the state institutions to furnish fresh tuberculin free and even to provide delivery service. If they do that they may find a large number of cases in practice that have not been suspected of being tuberculosis.

There is another question, that is the high cost of roentgen ray. It has kept many tuberculous families from examination. I think the time is coming when we will have to insist that the roentgen ray laboratories be more reasonable in their charges. I believe when we train physicians to do these things and when they are done as a matter of routine they will find that tuberculosis need not be regarded always as a hopeless disease. You have to observe the children from the time they are born, and that means examination frequently and frequent roentgen ray films. Of all the diseases in preventive medicine tuberculosis heads the list and the man who goes through his practice religiously, combs out these cases and follows them will do his families a great service.

There are two schools of thought as to case findings. One is through schools and one through contacts. I think it depends on the community. In some communities where there is a lot of tuberculosis the school is the right place; but in other places there is so little tuberculosis that it is rather expensive to go through the schools. The only way to find out in the community is to make a survey and see how many contacts you have and how many infected children you will find and then you will know which is the best way to do it.

Of course it goes without saying that we have to have facilities to take care of these patients. You may diagnose an active patient and have no place to put him. As far as children are concerned, I question the advisability of building large hospitals or preventoria. If we take the contacts out of the homes the children will do just as well to stay at home under proper care.

The industrial feature is certainly of some importance. At present the tendency of employes who have tuberculosis to sue the company because of so-called occupational disease will bear some fruit in that in the future the companies will probably take better

care of their employes and provide better means of diagnosis. At the same time, what of the disease that is present? The tuberculosis workers will have difficulty in sending patients back into the industry. These people will not want to employ the tuberculous patient if they think in a few years he will sue because tuberculosis has broken out because of certain dusts and inhalations while in their employ.

DR. OSCAR B. HALL, Warrensburg: In the first place I wish to express my appreciation for this part of the program. Not in any spirit of criticism relative to the arrangement of the whole program for this particular meeting, yet I do feel that it is a great mistake that we had it on the last day. I think this is probably one of the most important parts of the whole program; for this reason, the program generally through the sessions is mostly for the general practitioners throughout the State. This important part of the program has to do with such a common disease among children and adults as well as early manhood and womanhood that it is very, very important that it should be rendered to the general practitioners of the State, but I see very few here today. If we could have had this a little earlier on the program we would have had a whole lot of people here and it would do more good.

I do not believe the State in its institutions can do good in any particular line without having the cooperation of the general practitioners throughout the country. I think that is conceded by everybody today. But I do think that a method of teaching could well be used whereby the physicians throughout the State especially could well take part in this work on tuberculosis. I can conceive of no greater work that the State could do today. We have our sanitoriums here and there but they cannot take care of all the patients. Furthermore, it is absolutely impractical to treat all the cases in institutions; you cannot hospitalize them all. We must therefore have the cooperation, the active cooperation of the general practitioner, the family physician, so-called. These cases must be taken care of in the home. How can we best do it? That is the question. I think the physicians throughout the country who like myself are general practitioners should be educated, particularly about the diagnosis and how to treat these cases in the early stages. Personally, I am not so particular about the measures employed to cure the case, whether surgical or not, although I am interested in that; but that is not the important thing. The important thing is to prevent the necessity for such operation. Therefore we should understand how to diagnose these cases in the early stages.

Being a maker of programs for at least one county society, some of you men need not be surprised to hear from me relative to putting on a program in our own community. I think this has been a very important part of the program of the State Meeting and I certainly want to compliment you for it. I only wish that more practitioners in the State could have heard it.

DR. SAM SNIDER, Kansas City: Dr. Hall touched a place near my heart when he said we should have a good place on the program and should not be left to the last day. I have been trying for five years to get a tuberculosis program included in the program of the State Meeting at a time when somebody would be here to listen. I finally succeeded in getting it on the last day, and we did get a tuberculosis man on the Program Committee.

I agree with Dr. Mantz that the solution of the problem lies in cooperation of the general practitioner. He is the man behind the gun and he must cooperate with us if we are to solve the tuberculosis problem.

The first suggestion I would make would be to show

him how to make the tuberculin tests. Then I would suggest that he prepare tuberculin in proper dilution, all ready to be used, and then there is no danger of giving the patient too much if it is properly diluted. Then I would suggest in regard to the control of industrial tuberculosis that the tuberculin test be instituted by corporations who are working in dust mines, underground works, quarries, etc., with the exclusion of positive reactors.

DR. J. B. STOKES, Mount Vernon: I agree with Dr. Spector and Dr. Mantz that physicians should be educated. In our attempts to do this we have found it difficult to get physicians to attend our county medical society meetings. It has also been my observation that county societies place too little stress on tuberculosis. Among other things, artificial pneumothorax and the tuberculin test are seldom included in these programs.

In connection with diagnosis and case finding the tuberculin test has been used entirely too infrequently. As Dr. Spector and Dr. Mantz pointed out the tuberculin test often aids us in finding open cases.

In Lawrence County the medical staff of the Sanatorium have been going to the schools and tuberculin testing all the children who had their parents' consent. The number tested varied in the different schools and ranged from 30 per cent to 100 per cent. Of these about 12 per cent or 15 per cent were found positive. For these trips the physicians usually used their personal cars. The gas and oil were supplied by the State.

In order to reduce expense to the schools an agreement was made with each school board to pay one cent for each pupil tested and one dollar for a chest film of each positive reactor. Only about two schools in the county failed to take advantage of this agreement. On a few occasions we tested schools in an adjoining county and also in another county sixty or more miles from the Sanatorium.

While the amount collected did not take care of the expense connected with this program, we did enable these people to avoid the prohibitive cost of roentgen rays and at the same time our outlay was partially offset.

DR. H. I. SPECTOR, closing: There is no question that the whole Control program begins and ends with education. We feel that education is the biggest thing and that it should start with the legislators. I believe that you will not accomplish anything unless you put some one individual, paid by the State or the community, to direct this work. You cannot rely upon nonofficial agencies. They can help a great deal but the actual directing must be done by a man who gets paid for it and who can give all his time to it. The reason we have been able to have a school for tuberculosis for the last two years is because we have some one who has the time and is paid to plan such work. We have men in the sanatorium who are full time physicians and have the time to participate in a course on the subject.

Since we started this work in St. Louis, Indianapolis has requested us to outline a program for them and they are now running a course based on our method. South Carolina is now contemplating giving such a course. Three weeks ago I had a letter from a representative of the National Tuberculosis Association asking for some information as to the success or failure of this course. You will not be successful in carrying out the program unless you have some one who is officially responsible for the program.

I do not want to leave the impression that all the children in our schools are given the tuberculin test. They are not. We give it to the children in the open-

air schools, the children who are contacts, and we hope that some day the school board will permit us to go into the schools and do the tuberculin test on all the children.

DR. GEORGE H. HOXIE, Kansas City: It is difficult for us gathered here today to realize that many physicians do not attend their county medical society meetings and do not keep in touch with the literature on tuberculosis. Yet such is the fact. And these things which are to us so clear and evident are to them subjects either of no importance at all or are subjects causing revulsion. Nevertheless the movement toward the control of public health and in particular the campaign against tuberculosis will soon compel every conscientious physician to read up the subject of the modern diagnosis and treatment of tuberculosis, the subject of childhood tuberculosis and prepare himself to give adequate service to his patients.

May I say in answer to Dr. Hall's criticism that we were given such an out-of-the-way place in the program, that we should be grateful to Dr. Ryland for the freedom of this morning. We hope that next year we may be accorded a place on the program where a greater number will be able to participate in the discussions.

Mr. President, we thank you for your courtesy and kindness this morning.

DR. SAM SNIDER: The thing we want is to get the general practitioner interested in the program from the standpoint of his help in making it a success and to avoid his antagonism in wrecking the program. The general practitioner can wreck your program, any program you try to put over, unless we get his cooperation. The county nurses can also help. We recently did 265 tuberculin tests in a rural county in this State through the cooperation of the county nurse. Incidentally, we found the number of positive reactions five times as high as should be expected.

DR. C. T. RYLAND, Lexington: I wish to say that the President next year will use his best influence with the Program Committee to have a program of this kind at a time when the men are here. I think it is unfortunate that such a program should appear on the last day when so many have gone, and I shall use my best influence next year to have your program given the prominence it deserves.

RENAL TUBERCULOSIS

Monroe E. Greenberger, Leonard Paul Wershub, New York, and Oscar Auerbach, Staten Island, N. Y. (*Journal A. M. A.*, March 2, 1935), state that renal tuberculosis comprises 30 per cent of all surgical lesions of the kidney, being more than twice as common as renal tumors. They believe that neglect in recognizing tuberculosis in other parts of the body often leads to a failure in the recognition of early kidney involvement. To make a diagnosis of renal tuberculosis after extensive caseation and excavation has occurred is no difficult task. The recognition of early preclinical renal tuberculosis requires the greatest care, and until some reliable method is developed every effort must be made to correlate all clinical, roentgenologic and pathologic data. For this reason they attempt to correlate the incidence of renal tuberculosis in 500 cases of pulmonary and extrapulmonary tuberculosis in which necropsies were performed, which reveal the high incidence of bilateral renal tuberculosis. The non-destructive, closed or miliary lesion is common. The destructive, open, organ or chronic surgical tuberculosis of the kidney is notably deficient in symptoms despite the advanced renal involvement. Pulmonary tuberculosis appeared as the primary focus of infection.

ACUTE SACRO-ILIAC STRAIN

D. D. STOFER, M.D.

KANSAS CITY, MO.

A well defined clinical entity but not as frequently recognized as it should be, is acute sacro-iliac strain. To Goldthwait belongs the distinction of having first described this condition (1905), especially in pregnancy and acute or chronic conditions of the pelvis in women when relaxation of the muscles and ligaments is present. Cooke and Merrill have since given us considerable information on this subject.

In considering the sacro-iliac joints or synchondroses we have to think of these articulations as true joints which are depended upon in almost any movement of the body, and as joints which support considerable weight in the way of the head and trunk, with arm appendages and most of the viscera. The ilia and sacrum are merely in apposition to form a joint on both sides, the bony surfaces being smooth or slightly irregular and held in apposition by the ligaments and muscles. The sacrum can be considered as a wedge between two bones which can be moved upward or downward, backward or forward, in the sense of a tilting motion in carrying on the movements of the body. Any sudden strain which may tire or severely pull the muscles or ligaments will easily cause a strain of the joints. We can readily see, therefore, that the sacro-iliac synchondroses are subject to disease or strain in probably a greater degree than other joints of the body because of the anatomy and because of their constant use.

This report is based upon forty-two cases which were seen in a medical practice over a period of four years. In a large percentage of the cases the reason for seeking consultation was mainly because the patient thought the trouble was due to some kidney disturbance.

All of these patients complained of some of the following symptoms: Pain over the affected joint or joints, pain in the back muscles just above the joint or pain down the back of the legs. Some showed a favoring of the side affected, as evidenced by a stooping posture or bearing the entire weight of the body on the nonaffected side with a lateral deviation of the trunk to or from the affected side. A gait quite pathognomonic of sacro-iliac strain was present in some of the cases and was especially noticeable when the patient was climbing stairs. This is characterized by a dragging

of the foot on the affected side as each step is taken.

In diagnosing sacro-iliac strain the important factors are: (1) History of some acute strain producing sudden pain in the joint, or pain coming on minutes or hours after the strain; (2) pain particularly in one or both joints or at times referred pain; (3) physical findings such as postural defects, gait, pain on deep pressure over the joints or facial evidence of excruciating pain on movements of any kind, and (4) evidence of foci of infection in the teeth, sinuses, tonsils or prostate gland. In some cases the pain is not noticed by the patient until arising from bed in the morning after doing something unusual the previous day that caused the acute symptoms.

The severity and acuteness of the strain have considerable bearing upon the severity of the pain in the joint or joints and upon the symptoms present. The patient has pain on practically any movement of the body and especially when rising from or sitting down in a chair, trying to lie down in bed, rising from a prone position after being at rest for a short period of time. As a rule, the pain is alleviated by fixation in certain positions, but at times it is considerably worse when the muscles and ligaments are at rest thereby allowing a strain directly upon the joint.

From the economic standpoint considerable time is lost by farmers, laborers and business men on account of acute sacro-iliac strain. Because of the severe pain on movement they are unable to carry on their daily routine. Strains of the acute type last from a few hours to weeks and occasionally totally incapacitate the sufferer for several months if it is not treated properly at the beginning.

No doubt the primary cause of acute sacro-iliac condition is an unusual strain or trauma to the joint; however, underlying causes such as various foci of infection seem to play a very important part in causing the trouble. In twenty-nine of the forty-two cases mentioned there were a number of tooth abscesses, infected sinuses or definitely infected tonsils. It was interesting to note that in cases with foci of infection a strain of lesser degree apparently would cause the acute symptoms more readily than in those with no foci of infection. On removal of all foci of infection the acute symptoms were greatly alleviated. However, some kind of support to the sacrum and around the ilia was used in all the cases making this a little indefinite as to results.

In the cases seen the histories obtained varied from the acute strain being brought on by a taboret on which the patient was standing collapsing and letting the patient strike the floor on her feet with considerable force, to a patient stooping to pick up some object and being suddenly seized with acute pain in one or both sacro-iliac synchondroses. One history was that of a business man picking up a chair and carrying it at full arm's length for a distance of approximately sixty-five feet. About fifteen minutes after this manoeuvre he was seized with excruciating pain in the right sacro-iliac point and could hardly walk to my office, a very short distance from his place of business.

It so happened that this man had been rejected for life insurance two months previously because of a positive glucose test on his urine. Consequently, his one thought in consulting me was to have a urine analysis, since it was firmly fixed in his mind that "kidney trouble" was at the base of the severe backache in the region of the sacrum. Three of the patients were railroad brakemen whose acute symptoms were brought on by hopping on and off trains in their daily routine. In four cases in women there was no definite history of acute strain and the trouble was attributed to pelvic conditions, such as large fibroids, pregnancy and ovarian cysts. One of these patients could not get around at all until a large fibroid uterus was removed. There were two cases seen in my hospital work in which the acute symptoms were present after anesthesia. Almost any sudden twist of the body, stooping, cranking of a car, trauma directly to the joint or indirectly by way of a hard fall such as the feet slipping out from beneath one, total relaxation in anesthesia, especially so when the lumbar curve is increased, or perchance any slight movement, such as rising from a chair, may cause an acute sacro-iliac strain. Standing for any considerable length of time or an unusual amount of walking when one is not accustomed to it often produces severe pain in one or other of the joints.

In differentiating acute sacro-iliac strain from other conditions of the joints we have to consider a tuberculous joint, gonorrheal arthritis or other types of arthritis, fractures into the joint, metastatic carcinoma of the spine, subluxations, congenital anomalies, sacralized lumbar, neoplasms and foreign bodies in the joint. The skiagram of this region is of no particular value in acute

strains. One has to depend upon the clinical findings and history. Nevertheless, it is of considerable value in the other conditions named. Occasionally one must differentiate between an acute strain and some acute abdominal condition because the referred pain from the joint causes confusing symptoms, such as rigidity of the muscles of the abdomen and marked tenderness on deep pressure. A leukocyte count as well as a careful history and examination will clear up the situation. In a case of acute appendicitis which had abscessed through the psoas muscle with the pain confined principally to a region just above the joint the diagnosis was very confusing. Pelvic conditions in women such as fibroids, pregnancy, ovarian cysts or ectopic pregnancies are often confusing and a careful routine pelvic examination should be made on all. A prostatic abscess in one man of forty-six showed confusing symptoms in the way of pain in the sacro-iliac synchondroses. As Verroll stated, referred pain is the commonest pitfall in this trouble so one should carefully guard himself by a complete history and a thorough examination of the patient.

The general physician and the internist are the ones most depended upon for the diagnosis of acute sacro-iliac strain because the laity know very little about the trouble and confuse it with kidney complaints. For this reason the orthopedist is rarely consulted first. Strains of this type are fairly common, contrary to some adverse opinions. This is evinced not only by the number of cases seen but also by the quantity of patent medicine advertisements picturing a person with pain in the small of the back and advising certain "kidney pills" to relieve the complaint. Kidney diseases rarely if ever cause pain in this region. At times it is quite hard to convince some patients that the trouble is not due to kidney disease of a serious nature.

Once a sacro-iliac strain has manifested itself the patient is always subject to acute exacerbations and especially so in the cases which show foci of infection. I have always made it a point to emphasize to patients that the likelihood of another attack is quite great and for that reason they should guard against repeated attacks as much as it is possible for them to do so.

In the treatment of these cases best results were obtained by removing all foci of infection, large doses of salicylates (acetyl salicylate) grs. 10 every three hours night and day for a period of one, two or three days, or

until nausea appeared and then a reduction of the dose to grs. 10 every four or five hours, complete rest as nearly as possible and a fixation of the ilia and sacrum with a pad over the sacrum and wide adhesive straps around the ilia or with a sacro-iliac belt containing a pad to support the sacrum with a large overbelt which can be pulled tight enough to allow very little motion of the ilia and sacrum. This belt with a pad was fashioned some years ago with but a few minor improvements to the present time. The most important improvement seems to be the over belt which can be pulled considerably tighter than the ordinary corset belt can be fitted. It is an extremely necessary adjunct to the corset belt and pad. My experience with adhesive strapping has not been satisfactory for the reason that a majority of the patients feel well enough almost immediately to carry on their regular routine, and when walking or on any physical exertion a chafing of the skin is produced as well as a blistering and peeling off of the skin beneath the adhesive to such an extent that they are made extremely uncomfortable. I have considered it best advice to have them buy a well made belt; first, because it is more comfortable; second, the desired results can be obtained and third, they have this to use in future strains which they are quite likely to have. A chronic or persistent sacro-iliac strain requires a number of other procedures such as fixation by a cast, operative procedures, etc. However, I feel that the early recognition and treatment of an acute sacro-iliac strain usually prevents the chronic or persistent type.

1414 Professional Building.

THE POSTERIOR HYPOPHYSIS

E. M. K. Geiling, Baltimore (Journal A. M. A., March 2, 1935), in his discussion of the posterior hypophysis, gives the primary structural elements of the posterior lobe of the hypophysis as the neuroglial cells, the pituicytes and the nerve fibers. The neuroglial cells resemble those found elsewhere in the central nervous system. In the pituitary some of them have become differentiated to form pituicytes, highly branched cells that have granules in the cytoplasm. The presence and significance of nerve fibers in the posterior lobe are still an open question. None of these structures, with the exception perhaps of the pituicytes, are regarded as secreting elements in the ordinary sense. He discusses the origin and path of escape of the secretion, the chemistry of posterior lobe extracts, the physiologic, cardiovascular, metabolic, respiratory, renal (diuretic-antidiuretic action) and oxytocic effects, the action on the intestine, clinical uses and the diseases ascribed to hypersecretion. He concludes that one cannot assign with certainty any specific physiologic role in the animal economy to this potent autopharmacologic agent.

COMPRESSION FRACTURES OF THE SPINE

A SIMPLE METHOD OF TREATMENT

FREDERICK A. JOSTES, M.D.

ST. LOUIS

In recent years much attention has been directed to the treatment of compression fractures of the spine; and justly so, for there are few fractures which when not properly treated lend themselves to so much discomfort and pain both to the patient and to the physician.

This method is being presented to the profession, first, because not all hospitals are prepared to take care of compression fractures of the spine, due to the lack of prescribed present day equipment; second, because of the repeated requests for the details of this simple method of treatment since it was first outlined for the American College of Surgeons during its recent meeting in St. Louis.

THE METHOD

After the diagnosis has been made the patient is immediately placed upon a hospital bed of the type with an automatic knee elevator. (Figure 1-a.) The head of the patient is placed at the foot of the bed thus bringing the fracture site immediately over the knee rest. The knee rest is then elevated gradually until the spine at the site of the fracture is hyperextended sufficiently to bring about reduction. This can be done in from twelve hours to four days. At intervals lateral views of the spine are taken without



Fig. 1. (a) Simple hospital bed with knee elevator. Site of fracture immediately over knee elevator. (In this case the second lumbar.) (b) Shows method of obtaining lateral view of spine while the patient's spine is held in hyperextension.

From the Department of Surgery of Washington University Medical School, Barnes Hospital and St. Louis County Hospital.

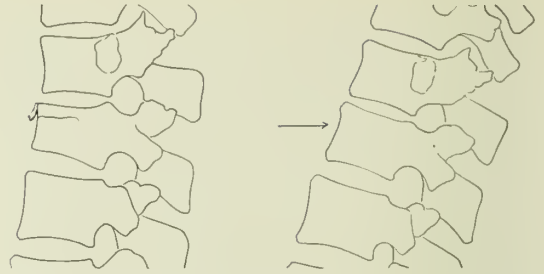


Fig. 2. (a) Outline of roentgen ray of case 1 before reduction. (b) Outline after reduction.

disturbing the patient's position. The film cassette is forced firmly over the prominence of the knee elevator thus depressing the mattress sufficiently to permit a true lateral view of the spine on the plate. (Figure 1-b.)

If complete "decompression" of the vertebral body has been accomplished as shown in the roentgenogram the patient can be left in the position on the bed until the fracture has healed or placed in a hyperextension plaster jacket applied in the usual way with the patient face down on canvas stretched over a pipe frame. We make hyperextension jackets for all patients but some patients are much more comfortable when left on the hyperextended bed than when placed in a jacket.

A patient with a compression fracture of the spine is kept in a hyperextended position either on the bed or in a hyperextended plaster jacket for a period of twelve weeks. No weight bearing is permitted. A hyperextended celluloid jacket is worn for a period of another three to five months. During this latter period the patient is up and about as usual.

Nursing of a patient lying in hyperextension over the knee rest is comparatively simple; in fact, much more simple than nursing a patient in a long hyperextension jacket. When a patient is held in hyperextension over the knee rest the buttocks are held sufficiently high to make bed pan service very simple. There is no need to do lifting, etc. Baths can be given and linen changed with little if any discomfort to the patient.

Patients who have sustained a compression fracture of the spine and are seen in the acute stage are immediately relieved of the greater part of the pain when the spine is hyperextended. This was observed for the first time by the author when he lifted a patient from one bed to another, placing one hand over the fracture site and inadvertently permitted the patient's back to hyperextend.

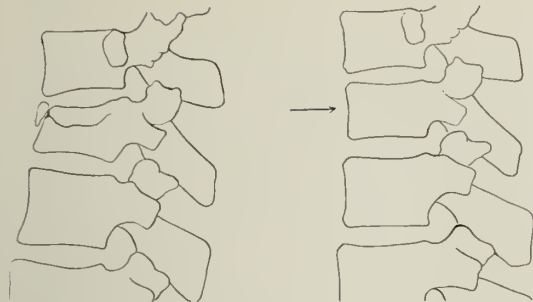


Fig. 3. (a) Outline of roentgen ray of case 2 before reduction. (b) Outline six months after reduction.

The patient immediately said there was a sudden great relief of pain.

If the compression fracture is also impacted, that is to say the fragments refuse to separate soon after the hyperextension, considerable pain may be experienced until such separation has taken place. One is at such a time literally tearing the fragments apart. This is made possible by the very great amount of elasticity of the intervertebral disks and the firm attachment which exists between these disks and the bodies of the vertebrae. These disks act as traction bands on the fragments.

REPORT OF CASES

Case 1. E. B., maiden lady, aged 50, a teacher, fell March 22, 1932, from a stepladder and landed on her buttocks. She had exquisite tenderness over the upper lumbar region. The spinous process over the twelfth thoracic was slightly prominent. Roentgen ray examination showed a compression fracture of the

body of the first lumbar vertebra with a small free fragment on the anterior surface of the body. (Figure 2-a.) The patient was placed on a simple hospital bed with knee elevation, having the head of the patient at the foot of the bed. As the knee elevator was raised the spine was hyperextended. A plate taken on March 30, 1932, showed complete "decompression." (Figure 2-b.) After three months of rest on a bed in hyperextension the patient resumed her duties as a teacher to crippled children. There has been no pain or discomfort to date. The patient wears her regular corset at present.

Case 2. H. K., a young woman, aged 24, fell from her horse on November 13, 1932, while jumping a culvert at one of the country clubs in St. Louis. Landing on the back of her head and her shoulders, her spine was acutely flexed. She suffered from acute pain and tenderness over the twelfth thoracic and first and second lumbar vertebrae. A roentgen ray showed a compression fracture of the body of the first lumbar vertebra. (Figure 3-a.) The patient was placed on a regulation hospital bed with the head of the patient at the foot of the bed and the knee rest striking the area of the first lumbar vertebra. After holding the spine in hyperextension for a period of four days a lateral roentgen ray was taken and complete reduction had occurred. Figure 3-b taken June 5, 1933, shows the result after a period of six months.

Case 3. The outline of a roentgen ray (figure 4) on a patient who was struck by an automobile some three years previously, shows a compression fracture of the first lumbar vertebra, healed in deformed position and showing a rather marked kyphosis with the result that the dorsal spine is thrown forward producing a compensating lumbar lordosis.

This patient had pain almost constantly. She had some relief from braces and corsets which attempted to hyperextend the spine. She refused spinal fusion. Incidentally, spinal fusion is not a cure-all for this condition. Only about 85 per cent of these neglected cases are free from pain after spinal fusion.

3720 Washington Blvd.

TUBERCULOSIS OF THE GENITAL TRACT

Hugh H. Young, Baltimore (Journal A. M. A., March 2, 1935), presents a series of statistics which are in complete agreement as to the following facts concerning genital tuberculosis: The disease arises more commonly in the prostate and vesicles than in the epididymis. Genital tuberculosis is ultimately accompanied by tuberculosis of the lungs or kidneys in a large proportion of cases. If the seminal vesicles are involved, adequate drainage is not furnished by the ejaculatory ducts, and from this region the disease progresses downward to the epididymis or upward to the kidneys or lungs. The presence of renal tuberculosis, which has occurred in about 30 per cent of the cases, is no bar to carrying out the radical operation, in addition to nephrectomy, and curative results may thus be obtained. The presence of old or recent tuberculosis of the lungs is often no contraindication to the radical operation; in fact, it is one's duty to assist, if possible, in the arrest of pulmonary tuberculosis by removing the external foci of tuberculosis. If the disease is apparently localized within the scrotum, most careful examinations should be made to rule out involvement of the vesicles and prostate before relying entirely on epididymectomy, which generally will not arrest tuberculosis of the vesicles. The radical removal of the seminal tract, both epididymides, vasa, vesicles and lateral lobes of the prostate is the operation of choice in the treatment of genital tuberculosis.

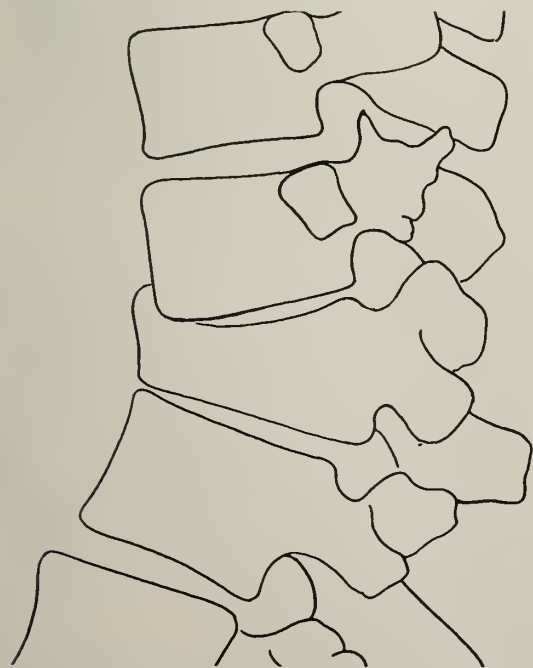


Fig. 4. Outline of roentgen ray of case 3 three years after accident, untreated.

RECENT CARDIOVASCULAR THERAPY

J. CURTIS LYTER, M.D.

ST. LOUIS

The purpose of this paper is to present the literature upon some substances which in Continental Europe are called cardiac hormones, to discuss their origins, chemical natures, physiological actions, clinical applications, and the reported therapeutic results of some European clinicians; and to add some personal observations in the treatment of angina pectoris with the substances.

Since Rénon and Martinet employed the *suc du coeur* in cardiac therapy there have been many and varied hopes, hypotheses and conceptions regarding the possibility of a cardiac hormone arising from the cardiac, hepatic or pancreatic metabolism and capable of originating and sustaining cardiac rhythm and of regulating myocardial contraction and tonicity.

Such hopes and conceptions have been expressed by Vaquez,¹ Monzon² and many other cardiologists. The work which culminated in the isolation of the present substances called cardiac hormones was begun almost simultaneously by Demoor,³ Haberlandt,⁴ Zwaardemaker⁵ and Zuelzer.⁶

Zwaardemaker called a substance "automatine" which he thought was to be found in the myocardium, the circulating blood and skeletal muscles.

Zuelzer gave the name "eutonon" to a substance which he extracted from the liver and which he found to possess the property of activating cardiac muscle and producing rhythmical contractions. Many other investigators made various extracts from the myocardium, liver, pancreas and skeletal muscles, each claiming some cardiovascular action.

As the literature is perused one is able to discern a hypothesis of a cardiac hormone resulting from myocardial metabolism and capable not only of originating and perpetuating cardiac rhythm but of regulating myocardial contraction, tonicity and conduction. Beginning with that hypothesis the investigators have extracted substances as follows:

From the liver Zuelzer has produced eutonon. Krey and Kraut have produced padutin from human urine, a substance which they believe to be of pancreatic origin. Using the skeletal muscles of the

veal, Fahrenkamp and Schneider⁷ have extracted a substance which they call lacarnol. Schwartzmann⁸ has produced myaston, and very recently a substance called myotrat has been produced from the same source.

That a substance obtained from such varied sources and by such different methods should have the same chemical constitution and physiological action is quite difficult for an ordinary internist to grasp properly. However, each of these various, and possibly varied, substances is called cardiac hormone.

Beginning with an investigation which was hoped to yield a hormone capable of direct action upon the various myocardial functions, the investigators have produced substances the primary action of which is said to be not upon the myocardium but upon the arteries, and especially upon the coronary arteries. If there is any myocardial action, it is in no way comparable with the vasodilatation resulting in the coronary system.

While only a certain number of the investigators attribute to the extracts such actions as cardioregulatory and the increase of cardiac tonicity, they are unanimous in attributing to them the action of markedly dilating the coronary arteries and moderately dilating the peripheral arteries and arterial capillaries.

If these substances possess the physiologic and therapeutic qualities attributed to them, the results of these investigations will change not alone the entire chapter upon cardiovascular physiology, but will perforce change completely the conception of the pathological physiology of angina pectoris sustained by many cardiologists, as well as that of hypertension, Raynaud's syndrome and intermittent claudication. Likewise it will force a revision of the entire therapeutic régime of vascular syndromes and of the prognosis in some of the more serious ones.

Quite recently there has appeared much discussion in the French literature⁹ concerning the chemical constitution and the physiological action of these substances. The investigators are unanimous in the opinion that they produce a marked coronary dilatation. Reference is made to an increased coronary output as the principal physiological action.^{10, 11} This was determined by Rigler in a series of experiments. There is also claimed to be a dilatation of the peripheral arteries and arterial capillaries, a regulating action upon the myocardium, a tonic action upon the myocardium, and a favorable action in some way ex-

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erted upon the various types of thrombo-angiitis.

From the above it can readily be contemplated that the substances would be of most value in the treatment of coronary insufficiency resulting in angina pectoris, in Raynaud's disease, essential or idiopathic hypertension and intermittent claudication. As a matter of fact, they seem to be of most value in certain types of angina pectoris and of moderate value in intermittent claudication and so-called idiopathic hypertension. At least this was the impression the writer obtained while visiting the Continental clinics.

Rigler, searching for the chemical constitution of the substances, observed that most of their biological and chemical characters resemble those of histamine, and attributed their therapeutic value to this body. Professor Eppinger expressed a similar view to the writer in a private conversation in August, 1933. More recently, Rigler has concluded that the active principle of most of the substances is adenosine phosphoric acid and he, apparently, has been able to reproduce their coronary action by a weak solution of the adenosine phosphoric acid.

Some experimentation upon the isolated intestine of the guinea pig however failed to reveal results characteristic of histamine. Moreover, Fahrenkamp has apparently shown the absence of histamine in his muscle extract. Buchholz claims the same for his extract. H. Fredericq¹² has shown that most of the extracts contain large quantities of amino acids and offers the suggestion that since the extracts are not the result of secretion they should not be considered as hormones but as products of cellular disintegration similar to the residue of digestion. This suggestion could certainly not apply to padutin.

As one peruses the literature at the present time he obtains the impression that the majority opinion of the investigators leans decidedly toward considering the extracts as of the same chemical constitution as amino acids, adenosine, or some products of nuclear disintegration unknown today. After reading the discussions one is prompted to ask again for the chemistry of a hormone.

CLINICAL APPLICATION

Regardless of their chemical constitution, and this question is not at all settled, the clinicians seem to be unanimous in the opinion that the extracts, especially those from skeletal muscles and padutin, are of great

value in the treatment of certain types of angina pectoris and intermittent claudication. Here again one is confronted, as would be expected, with many very attractive if unproved hypotheses concerning the pathological physiology of certain vascular syndromes, particularly angina pectoris.

Schwartzmann, discussing the application of his own extract, or hormone as he designates it, seems to believe that functional coronary spasm produces in the myocardium a cramp similar to that so frequently observed in skeletal muscles, and that the pain and associated symptoms characteristic of angina pectoris result therefrom. He seems to believe that the spasm in these cases results from an insufficient quantity of the muscle hormone in the circulating blood. The premise of the hypothesis is that during muscular exercise the heart is stimulated to do more work, consequently requires more blood in the coronary system; and that the muscles themselves during contraction produce a hormone the action of which is to dilate the coronary arteries. To support this hypothesis Schwartzmann recalls Heberden's report of a patient who was able to prevent his anginal attacks by sawing wood for one half hour each morning. He also recalls the experience, so common with all who see very many cases of angina pectoris, of his patient who upon going for a walk was forced, because of the pain, to rest every block or so until the pain would subside. This would occur for four or five blocks following which he could walk for miles with no distress. The assumption is that after the walk of four or five blocks the skeletal muscles produced the hormone in a quantity sufficient to dilate the coronary arteries adequately.

This is the type of angina considered by the late Sir James McKenzie as secondary or functional. Schwartzmann believes that energetic muscular exercise causes an elaboration of the hormone by the skeletal muscles in quantities sufficient to produce coronary dilatation thereby obviating the myocardial cramp. The hypothesis is rather appealing to those of us who have seen cases of angina pectoris of effort completely relieved by systematic and supervised exercise.

Drucker¹² in discussing the indications for the extracts in angina pectoris, offers the following:

1. Ambulatory cases of angina pectoris of effort. There being no evidence of collapse or anguish upon moderate exertion.

2. Toxic angina, tobacco, coffee, tea, alcohol, etc.

3. Vasomotor angina, as in women at menopause. Autonomic disturbances from psychic, metabolic or reflex changes.

Drucker does not believe favorable results obtainable in angina resulting from aortic sclerosis, atheroma, syphilis, coronary sclerosis, thrombosis, or from myocardial changes such as fibrosing myocarditis. He reports good results in those types indicated above, however.

Hubert treated eighty-three cases of angina with complete eradication or great amelioration of the symptoms in sixty-one. Those patients with little or no elevation of blood pressure were most benefited.

Neilson reports twelve recoveries in eighteen treated cases with three experiencing marked amelioration, and the other three deriving none.

Fahrenkamp and Schneider, using their muscle extract lacarnol, treated eighty-three cases with no failures.

Buchholz reports seven cures out of eleven cases treated.

The writer saw some cases under the combined treatment of lacarnol internally and padutin intravenously in various Continental clinics. The clinicians and their staffs were apparently well satisfied with their results in angina pectoris and intermittent claudication.

There seems to be a rather universal opinion among the European clinicians that the muscular extracts exert a most favorable influence upon certain cases of angina pectoris and intermittent claudication. There are some clinicians who praise them also in the treatment of cardiac irregularities and myocardial inefficiency. Finally, there are those who believe them to be of signal value in the so-called idiopathic hypertension.

The muscular extracts are universally used while some combine with these the intravenous or subcutaneous administration of padutin.

The writer, since his return from Europe in September, 1933, has had opportunity to use the two substances, lacarnol and padutin, in the treatment of angina pectoris. The lacarnol was given in doses of thirty drops after each meal. The padutin was given intravenously 1 cc. each day for periods of from thirty to sixty days depending upon the alleviation of the symptoms by the administration of the remedies.

Of the twenty-one cases of angina treated, seventeen were cases of angina pectoris of

effort. Thirteen of the seventeen have been completely relieved of the angina and the associated symptoms. It might be said here that after the symptoms were relieved each patient was placed upon graduated exercise in the way of walking. The patient was instructed to begin by walking two blocks the first day. This distance was increased two blocks each day until the patient walked approximately sixty blocks each day. At this period the treatment was discontinued and the patient advised to continue the walks daily throughout the remainder of his life. Some of them have been advised to play golf, gradually increasing the number of holes until one patient was able to play thirty-six holes with no symptoms whatever.

If there is anything in the hypothesis that there is produced in the skeletal muscle during exercise a substance capable of dilating the coronary arteries, it would appear that graduated and sustained exercise is absolutely essential in the treatment of those types of angina pectoris of effort not associated with aortic atheromatosis, aortic sclerosis, coronary atheromatosis, coronary sclerosis or fibrotic myocardial changes. In fact, it has been the writer's experience over a period of fifteen years that exercise, well supervised and distinctly graduated, is the best remedy for those types of angina pectoris of effort which reveal no evidence of cardiovascular change upon physical, roentgenographic or electrocardiographic examination.

Of the thirteen cases who have apparently recovered not one revealed any evidence of gross cardiovascular changes upon a very scrutinizing examination.

Of the seventeen cases of angina pectoris of effort four have improved distinctly but are not symptom free. Each of these patients, two of them physicians, feel that they have markedly improved and are able to carry on their work, indulge in moderate exercise but still, under mental stress, anxiety or continuous exertion reveal some pain, thoracic constriction and at times slight dizziness.

Of the twenty-one cases, four were angina pectoris of decubitus who revealed marked cardiovascular changes upon physical, roentgenographic and electrocardiographic examination. These patients suffered pain not only upon exertion but even when resting quietly, especially after a meal. None of these four received any benefit whatever; in fact, two of them have died very suddenly since this presentation was given before the

Missouri State Medical Association in May, 1934.

In conclusion, it would seem that in those cases of angina pectoris of effort that reveal no physical, roentgenographic or electrocardiographic evidence of cardiovascular lesions, the careful use of lacarnol and padutin accompanied by carefully supervised and graduated exercise, we have a method of treatment which offers a distinct advance beyond anything which has been offered previously, and probably an investigation of which will eventually lead to a complete cure in this most distressing malady.

Frisco Building.

BIBLIOGRAPHY

1. Deschamps, P. N.: Un aspect nouveau de la question des hormones cardiaques, *Arch. d. mal. du coeur*. **26**:223 (March) 1933.
2. Mouzon, J.: Que doit-on penser des "hormones cardiaques"? *Presse med.* **36**:582 (May 9) 1928.
3. Demoor, J., and Rylant, P.: *Arch. internat. de physiol.* **21**:113, 1926; *Arch. internat. de physiol.* **27**:1, 1926; Properties of Active Substances of Right Auricle of Heart, *Compt. rend. Soc. de biol.* **93**:814 (Sept. 30) 1925; Influence of Active Substances Extracted from Keith-Flack on Functioning of Auricles and Irritability of Vagus, *Compt. rend. Soc. de biol.* **93**:1239 (Nov. 20) 1925; Regulation by Body Fluids of Work of Heart Ventricle, *Compt. rend. Soc. de biol.* **95**:219 (June 25) 1926.
4. Haberlandt, L.: Sinus Hormone of Frog's Heart, *Klin. Wechschr.* **3**:1631 (Sept. 2) 1924; Hormone of Ventricle of Frog's Heart, *Klin. Wechschr.* **4**:1778 (Sept. 10) 1925; Heart Hormone, *Klin. Wechschr.* **5**:1522 (Aug. 13) 1926; Fortgesetzte Hersbormon Studien, *Klin. Wechschr.* **6**:1147 (June 11) 1927; Über ein Hormon der Herzbewegung, *Klin. Wechschr.* **6**:2099 (Oct. 29) 1927; Über Spezifität, *Klin. Wechschr.* **6**:2144 (Nov. 5) 1927; Über ein Hormon der Herzbewegung, *Pflüger's Arch. f. d. ges. Physiol.* **214**:471, 1926; Ueber ein Hormon der Herzbewegung, *Pflüger's Arch. f. d. ges. Physiol.* **216**:778, 1927; Das Derzbormon "eutonon," *Med. Klin.* **23**:1173 (Nov. 11) 1927; Über ein Hormon der Herzbewegung, *Med. Klin.* **24**:22 (Jan. 6) 1928; Prinzipielles zur Herzbormon-Frage, *Med. Klin.* **24**:577 (April 13) 1928.
5. Zwaardemaker, H.: *Ergbn. d. Physiol.* **20**:326, 1921; Ueber die Bedeutung der Radiaktivität für das tierische Leben, *Ergbn. d. Physiol.* **25**:535, 1926; *Pflüger's Arch. f. d. ges. Physiol.* **209**:20, 1924; Awakening of Frog Heart After Potassium Withdrawal by Polonium Irradiation, *Pflüger's Arch. f. d. ges. Physiol.* **213**:757, 1926; Über die Strahlungsstoffe im Herzen, *Arch. f. d. ges. Physiol.* **218**:354, 1927.
6. Zuelzer, G.: Das Hersbormon "Eutonin," *Med. Klin.* **23**:1502 (September) 1927; Zum gegenwertigen Stand der Hersbormongrage, *Med. Klin.* **24**:571 (April 13) 1928.
7. Fahrenkamp, K., and Schneider, H.: Vergleichende Untersuchungen mit einem als Hormocardioli bezeichneten Herzbormonpräparat und einem neuartigen muskelextrakt, *Med. Klin.* **26**:48 (Jan. 10) 1930.
8. Schwartzmann: Une nouvelle methode de traitement de l'angine de poitrine, *Paris med.* **226** (March 8) 1930.
9. Deschamps, P. N.: Un aspect nouveau de la question des hormones cardiaques, *Arch. d. mal. du coeur*. **26**:223 (March) 1933.
10. Rigler, R., and Schaumann, O.: Beeinflussung der Weite der Herzkranzgefasse durch Produkte des Zettkernstoffwechsels, *Klin. Wechschr.* **9**:728 (Sept. 13) 1930.
11. Rigler, R., and Schaumann, O.: *Loc. cit.*
12. Deschamps, P. N.: *Loc. cit.*

G. H. Whipple, Rochester, N. Y. (Journal A. M. A., March 9, 1935), in his Nobel Prize lecture, states that it is obvious to any student of anemia that a beginning has been made, but that the knowledge of pigment metabolism and hemoglobin regeneration is inadequate in every respect. This is a stimulating outlook for the numerous investigators in this field, and much progress in the near future may be confidently expected.

DILAUDID ADDICTION

REPORT OF A CASE

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SPRINGFIELD, MO.

Dilaudid (dihydro-morphinone hydrochloride), an alkaloid in which one of the hydroxyl groups of morphine is replaced by a ketone group, is allied chemically and pharmacologically to morphine. Dilaudid was patented in Germany in 1923 and brought to the attention of American physicians in 1932 by Alvarez.¹ The chief advantages claimed for dilaudid over morphine are that its repeated use has less tendency to produce habit formation and that there are never unfavorable side effects, such as nausea, constipation, nervousness and euphoria. Eddy's² report cited several references in the German literature of cases of addiction. However, most American authors reporting on the use of dilaudid have had relatively little to say about the danger of addiction. The case here reported as well as the references given from other sources indicate that the advantages of dilaudid over morphine have been greatly overestimated and that it is a habit forming drug.

REPORT OF CASE

H. B., male, fur and hide dealer, aged 52, entered Burge Hospital July 22, 1934, with the desire of breaking the habit of dilaudid to which he became addicted some three or four months before. For the last year he has had almost daily attacks of nausea and vomiting accompanied by severe abdominal cramps. He described his attacks as being "sick to his stomach" at which time he is unable to retain any food in his stomach. His appetite was poor, bowels constipated. He had lost considerable weight. Since his operation in 1925 he has been troubled with some abdominal pain every six months. He states that morphine relieved him during an attack so that he would not require any more morphine for six months.

Three months ago I saw the patient in one of his attacks. He stated that a hypodermic of morphine was the only thing that would give relief. Bromides and luminal had given no relief. Since dilaudid was considered less habit forming he was given dilaudid which gave him relief so that he could continue with his work. After a short time it was concluded he had developed a craving for the drug as he required four to five hypodermics of dilaudid, grains 1/20, daily. The dilaudid was administered at home by his nurse.

Past History.—He was treated for stomach trouble in 1908. In 1915 he had an appendectomy; stomach was explored but no lesion found. In 1920 while at the Mayo Clinic a diagnosis of duodenal ulcer was made and a gastro-enterostomy performed. He was comparatively free from gastro-intestinal trouble until 1925 when the previous trouble returned necessitating a second operation at the Mayo Clinic on the newly formed ulcer. He had had the usual childhood diseases.

Read before the Burge Hospital staff, October 10, 1934.

Family History.—Father died of pneumonia, aged 43; mother died of carcinoma of stomach, aged 78; wife died of placenta previa, aged 32.

Habits.—Drinks one cup of coffee for breakfast. Smokes ten to twenty cigarettes daily. Eats regularly.

Physical Examination.—Physical examination reveals a poorly nourished male 5 feet 7 inches tall, weighs 150 pounds, is weak and has pin point pupils. Temperature 97.6; pulse 76; respiration 16; blood pressure 145/90; tongue coated; teeth pyorrheal. Two midline incision scars. Left abdominal incision scar over left rectus. All other physical findings negative.

Laboratory.—Kahn, negative; urinalysis, negative. Roentgenogram and fluoroscopy of stomach revealed no obstruction. Good activity regarding emptying time. A moderate degree of hyperperistalsis was present. Barium was seen passing through both the pylorus and the opening of the previous gastroenterostomy.

Diagnosis.—Dilaudid addiction; marginal peptic ulcer (postoperative).

Complying with his desire to become free from the habit of taking dilaudid the patient was placed in Burge Hospital and treatment begun. His clothing and belongings were searched and care was taken to avoid any outside entrance of dilaudid. The treatment carried out was the same as that used in treating a morphine addict. The patient was actively purged by using the following formula of Dr. George E. Petty, of Memphis, Tennessee:

| | |
|--------------------------|--------|
| Hydrargyri Chloride Mite | 0.65 |
| Rhamnus Purshiana | 0.65 |
| Ipecacuanha | 0.065 |
| Strychnina Nitratis | 0.0162 |
| Atropina Sulphatis | 0.0013 |
| M. and make 4 capsules. | |

One capsule was given at 4, 6, 8 and 10 p. m. after each meal. After 6 a. m. 1/30 grain of strychnine was given hypodermically and a large dose of citrate of magnesium by mouth. No dilaudid was given before his bowels had moved. The last month he has been accustomed to taking about five hypodermics of dilaudid grains, 1/20, daily. One half of this amount was permitted him the first day. In the afternoon 1000 cc. of normal saline was given intravenously to dilute toxic substances in the blood stream and to replace the loss caused by catharsis. Triple bromide and sodium luminal were administered for nervousness. A light nutritious diet was prescribed. The purative capsules and normal saline injections were given every other day for one week. The dose of dilaudid was gradually withdrawn and discontinued at the end of one week. Digalen was given as needed for the weak pulse while ergot was used to aid in relieving the cerebral congestion. Alkalies were prescribed for the ulcer condition. After ten days of treatment his appetite began to improve and he was placed on a regular diet. He was discharged from the hospital on August 11, 1934, nineteen days after his admission. Although he was weak and had lost considerable weight he returned to his work in two weeks. A check-up two months later revealed that his state of health was good and he had gained 20 pounds in weight.

COMMENTS

Jewett³ states that persons addicted to narcotic drugs through some physical disorder are usually of a higher type than those who have acquired the disease through purely social and psychological causes and

the general outlook for a permanent cure is more favorable. In treating dilaudid addicts, like those addicted to the morphine habit, the old environment which leads to contact with the drug must be avoided. Overwork, worry, being alone and over-excitement should be avoided.

Stroud,⁴ in a series of 114 cases of malignant tumors, states that dilaudid is less habit forming than morphine and that untoward side effects were less marked.

Dr. Sainton⁵ states that "Dilaudid gives the same feeling of euphoria with the same craving for larger and larger doses until a habit is formed as in the case of morphine and diacetyl morphine."

Scott⁶ reports that 10 to 15 per cent of morphine addicts who submit themselves for treatment recover.

SUMMARY AND CONCLUSION

1. A case of dilaudid addiction, associated with marginal peptic ulcer (postoperative), previously addicted to morphine, is presented.

2. The management of those addicted to dilaudid and morphine is identical.

3. Dilaudid, like morphine, relieved patient of abdominal pain and also satisfied his craving for morphine.

4. Dilaudid is a habit forming drug producing symptoms similar to those of morphine.

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BIBLIOGRAPHY

1. Alvarez, Walter C.: Proc. Staff Meetings, Mayo Clinic, (August 17) 1932.
2. Eddy, Nathan B.: Dilaudid (Dihydromorphine Hydrochloride), J. A. M. A. **100**:1032 (April 1) 1933.
3. Jewett, Stephen Perham: Tice's Practice of Medicine, **8**:18.
4. Stroud, C. Malone: The Use of Dilaudid in the Pain of Cancer, J. A. M. A. **103**:1421 (November 10) 1934.
5. Dr. Sinton: Dilaudidomania, a New Drug Habit, Foreign Letters (Paris), J. A. M. A. **103**:1463 (November 10) 1934.
6. Scott, G. Laughton: The Morphine Habit and Its Painless Treatment.

COXA MAGNA: CONDITION OF HIP RELATED TO COXA PLANA

Albert B. Ferguson and M. Beckett Howorth, New York (Journal A. M. A., March 9, 1935), report thirteen cases of simple coxa magna and twelve cases that illustrate the relation of coxa magna to other conditions. They discuss the clinical features, pathologic changes, diagnosis, roentgen features, course and treatment and development of coxa magna. They believe that the importance of coxa magna is twofold: First, if the condition is not recognized, unnecessary or harmful treatment may be used. Second, it is an essential feature in completing a conception of the conditions related to coxa plana. The treatment of coxa magna should be rest in bed without immobilization and removal of foci of infection. Coxa magna may arise in a variety of ways, which are illustrated here by selected cases.

THE ADVANTAGES OF LOCAL ANESTHESIA IN GYNECOLOGY AND OBSTETRICS

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To speak on local anesthesia before an audience in Kansas City seems like carrying coal to Newcastle, for your fellow townsman, Dr. A. E. Hertzler, has been one of the earliest advocates of this form of analgesia in this country and his book has been to me a source of instruction and inspiration. The method itself originated with Réclus in France, and Schleich in Germany, more than forty years ago. The former employed injections of cocaine, the latter infiltration with saline solution to perform a number of minor operations. The novel procedure, however, found a wider range of applicability only when cocaine was replaced by less toxic substitutes. The general surgeons were the first to recognize its absolute safety and to avail themselves of its new possibilities. In our own specialty very little interest in local anesthesia was evinced until quite recently and yet there is an exceptionally large field for it both in gynecology and obstetrics.

In gynecology, practically all vaginal operations can be performed under local anesthesia. It is, however, an indispensable requirement first to put the patient into a deep "twilight sleep" by means of morphine-scopolamine injections. This is an essential part of local anesthesia in gynecology not only because we wish to allay the natural apprehensiveness of the patient but because without this twilight sleep no one can endure the terrific strain of the lithotomy position in which all vaginal operations are performed. From the way the patient responds to these preliminary injections which are given two and one half, one and one half and one half hours, respectively, prior to the time set for the operation, we can infer at once whether or not local anesthesia will be satisfactory. If the "twilight" is not complete some ether or gas will probably be needed during the operation. Occasionally morphine and scopolamine intensify rather than decrease an existing nervousness; such patients should at once have an inhalation narcosis. In the overwhelming majority of cases, however, the patients come to the

operating room in deep slumber and are not disturbed by the unnatural posture on the table, particularly if the lumbar spine is supported by a firm pillow.

The standard fluid for local anesthesia is $\frac{1}{4}$ per cent novocain dissolved in a normal saline solution with the addition of three and one half drops of adrenalin to each ounce. The principle of the method is the blocking of the reginal nerve supply by infiltration of the tissues. The more copious this infiltration is the more complete is the analgesia and as the extremely weak novocain solution is practically isotonic, there need be no fear of toxicity and there is no danger of devitalizing the tissues particularly if the fluid is injected at body temperature.

In operations on the vulva the nerves supplying the external genitals are very easily anesthetized by subcutaneous injections. In this way a complete vulvectomy can be carried out painlessly. In cysts of the Bartholin glands or other tumefactions of the labia the tumor must be completely surrounded by a wall of infiltrating solution.

Perineorrhaphies likewise require extensive infiltration. The initial injection is made along the mucocutaneous border; then the levator muscles are infiltrated submucously whereby a finger in the vagina guides the needle into the muscle; and finally, the tissues between rectum and vagina are injected well beyond the lines of denudation. Complete analgesia is accomplished in less than five minutes, but occasionally additional injections are required. The operation is surprisingly easy. The field is bloodless thanks to the adrenalin in the solution. Although most of the injected fluid escapes after denudation the tissues have become softened; they are readily separated, easily identified and differentiated and can be properly united. As stated before, the novocain solution is non-irritating and therefore does not interfere with wound healing, but it is necessary to ligate all visible vessels.

Complete tears require much the same technic, but the injections must be carried around the anus so as to block out all nerves.

While on an average three ounces are needed for a perineorrhaphy, much less is used for an operation on the anterior vaginal wall such as cystocele or vesicovaginal fistula; even for the rather extensive Le Fort operation for prolapse only two ounces are required.

Operations on the cervix and uterus call for a different technic. The cervix is exposed and gently pulled downward and to

From the Department of Obstetrics and Gynecology, Washington University School of Medicine.

Read by invitation before the Kansas City Obstetrical Society, March 3, 1934.

one side. The needle is inserted into the lateral fornix close along the cervix for a distance of one inch and one ounce or more of the solution is injected while the needle is slowly drawn out. The procedure is then repeated on the other side. By this infiltration of the parametria all nerves including the large ganglion of Frankenhäuser are effectively blocked. The beginner may meet with a resistance in inserting the needle. In that case he has stuck the needle into the uterine wall and he merely has to withdraw the point a bit and change its direction. A few drams are injected into the space between the cervix and the bladder and between the cervix and the rectum, and the blanching of the tissues indicates that analgesia is achieved.

Two possible dangers may readily be prevented: (1) The needle may enter a blood vessel and the novocain solution if injected into the circulation may cause a transient shock. This complication is easily prevented by pulling on the piston before injecting the fluid. If blood flows into the syringe the fluid is changed. (2) The needle may break off. As this almost always occurs at the hub it is wise not to insert the needle its full length so the broken fragment can quickly be extracted.

As to the operations themselves, curettage presents no difficulties. The most painful part of it is the dilatation, particularly if the internal os is narrow and rigid. Under local anesthesia this procedure is not only painless but also seemingly easier because any muscular spasm is relaxed. The scraping away of the uterine mucosa is not felt by the patient; only in the tubal corners there is often a slight degree of sensitiveness because these parts of the uterus are supplied by nerves which follow the ovarian vessels and are not blocked by the parametric infiltration.

All plastic operations on the cervix can be performed with complete freedom from pain and are rendered quite easy because the usual copious bleeding is conspicuous by its absence.

Local anesthesia is particularly impressive and satisfactory when a vaginal hysterectomy is performed for prolapse, cancer or medium sized fibroids.

The entire procedure is bloodless especially if my own technic is carried out. There is no pain upon cutting through the parametria and separating the bladder and the rectum from the cervix. Even if the large size of a fibromatous uterus requires piece-

meal removal there is neither bleeding nor pain. Only when the upper portions of the broad ligaments are reached and a strong pull is exerted on the round and infundibulopelvic ligaments and thereby on the parietal peritoneum are the patients whose twilight sleep is not deep enough conscious of pain. This cannot be relieved by additional injections of anesthetizing solutions and at this stage we may in about 30 per cent of the cases be forced to give a few whiffs of gas or ether, an insignificant amount which acts rather as a stimulant and in no way detracts from the value of the local analgesia.

Those who prefer the interposition operation to hysterectomy for prolapse can avail themselves in like manner of the advantages of local anesthesia.

Finally, where vaginal and abdominal work has to be done, all the necessary vaginal procedures are first performed in local anesthesia and the inhalation narcosis is started only after the patient has been placed in the dorsal position. The amount of the inhaled anesthetic is thereby greatly reduced so that the entire time consuming operation does not put the patient under an undue strain.

It is one of the very great advantages of local anesthesia that it does not influence the general condition of the patient in any way. When we use the term "poor surgical risk" we are usually thinking of the effect the narcosis may have on the patient. This factor is practically eliminated when we employ local anesthesia. Thus old age is not necessarily the contraindication it used to be; among my vaginal hysterectomies there are no less than six performed on women past 70, the two oldest being 76 years of age. Patients with tuberculosis, diffuse bronchitis, emphysema, severe cardiorenal disorders, diabetes, exophthalmic goiter and other complications that would ordinarily make one hesitate passed easily through vaginal hysterectomies under local anesthesia. Systematic investigations have further shown that neither hypertension nor hypotension is influenced one way or the other by local anesthesia.

The after-care of patients following operation in local anesthesia is surprisingly easy, an incident which is most favorably commented upon by the attending nurses. The absence of nausea and vomiting permits of very early intake of fluids and food and the general well-being of the patients seems to be restored sooner than after a general nar-

cosis. Thus even a hysterectomy loses to a large extent the character of a major operation.

With all these advantages in mind it is very essential that an exact diagnosis be made before one embarks upon any operation in local anesthesia. Inflammatory conditions with numerous adhesions which entail much handling of intestines and pulling on the parietal peritoneum are definitely unsuited for this form of analgesia.

With the exception of a very few unusual cases, local anesthesia does not offer decided advantages in laparotomies unless one possesses the complicated machinery which Farr, of Minneapolis, seems to have at his command. The only abdominal operation for which local anesthesia has attained some degree of popularity is cesarean section. Safety for both mother and child is the keynote of this operation. For this reason any preoperative medication such as morphine and scopolamine should be restricted lest it lessen the child's chances. The operation, therefore, requires the hearty cooperation on the part of the mother who is willing to subordinate her own fears to the passionate desire of having a living child. This makes a section entirely in local anesthesia definitely more strenuous to the surgeon and the patient. Such at least was my personal reaction in the four cesarean sections in which I used only local anesthesia. Much more often I have employed local anesthesia merely to incise the abdomen and finished the operation in inhalation narcosis; and in the last year I have omitted the initial local anesthesia altogether in order to save time.

There is, however, in the field of obstetrics a wide enough scope for local anesthesia. The emptying of the uterus after an incomplete abortion, for instance, is very simple if done under local anesthesia because there is no additional loss of blood and the same advantage obtains in vaginal cesarean sections, or the like.

Even more valuable is local anesthesia in normal labor. When the head reaches the pelvic floor the entire perineum and the levators are infiltrated as for a perineorrhaphy and the injections are carried a short distance further downward on the side on which an episiotomy is to be made.

Two interesting observations can now be made. In most instances the frequency and intensity of the contractions decrease somewhat after analgesia becomes complete. The patients may still complain of backache but no longer feel the excruciating, tearing pain

of the passage of the head through the vulva. Very often a low forceps extraction can be made without knowledge of the patient.

In some cases the pelvic floor seems to yield more readily so that lacerations are on the whole less frequent. An episiotomy, when necessary, can be performed painlessly and, still more important, bloodlessly, and later can be repaired with equal ease. The third stage of labor shows no change from the usual course; the children remain, of course, entirely unaffected. The routine use of local anesthesia in normal labor, therefore, reduces any inhalation narcosis to a minimum and thereby forestalls many of the well known unfavorable sequels that may come to mother or child from too copious or too prolonged employment of chloroform, ether or nitrous oxide.

I have tried to present to you the numerous uses of local anesthesia in both the gynecological and obstetrical fields and I have endeavored to bring out the decided advantages this form of surgical analgesia has to offer in our specialty. I would not wish to leave the impression, however, that even with my own strong leaning toward local anesthesia I would advocate its employment in each and every case. Individualization must always remain the keynote in all our medical procedures. By the same token, we can, in our gynecological or obstetrical operations, do full justice to the individual needs of our patients if we have familiarized ourselves with all methods of pain relief.

Metropolitan Building.

LEUKEMIA: ITS DIAGNOSIS AND TREATMENT

Nathan Rosenthal and William Harris, New York (Journal A. M. A., March 2, 1935), believe that the relative occurrence of the three principal groups of leukemia apparently corresponds with the relative percentage of the various types of leukocytes in the circulating blood; namely, granulocytes, lymphocytes and monocytes. The underlying systemic disorders present in all cases is essentially the same. An arbitrary division may be made according to the duration of the disease, acute or chronic, and also according to the number of white blood cells, into leukopenic and leukocytogenic forms. Symptomatology, although of great value in differentiating the disease, is unreliable for purposes of diagnosis. This should be based on the characteristic blood changes, which do not depend so much on the number of white blood cells as on the presence and persistence of specific types of cells, such as myelocytes, myeloblasts and relative and absolute lymphocytosis. Confirmatory diagnosis of the more obscure varieties may be made by biopsy on the sternal bone marrow or on a lymph node. The treatment of leukemia is largely symptomatic. Arsenic, transfusions and particularly roentgen irradiations are the chief means of inducing symptomatic improvement, remission or possibly prolongation of life.

ATYPICAL THYROID DISORDERS

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It is not the purpose of this paper to discuss the classical, more typical thyroid syndromes, but rather to bring out the features of some of the more obscure and unusual types so frequently misinterpreted and consequently ineffectively treated.

These atypical disorders include mild hypothyroidism without myxedema and certain obscure and atypical manifestations of hyperthyroidism, either exophthalmic or toxic adenomatous in type.

Hypothyroidism Without Myxedema.—There are certain cases of mild subthyroidism occurring spontaneously or occasionally following thyroidectomy in which the deficiency is not great enough to produce frank myxedema and the condition may be overlooked because of the absence of the classical symptoms and signs of thyroid deficiency. The face may not show the slight underlying waxiness nor the skin be unduly harsh or thickened although like the hair, it is apt to be dry. The temperature and pulse may not be consistently subnormal. Typical mental lethargy or somnolence are not present, nor is the facial, hand or supraclavicular infiltration. The symptoms are apt to include unaccustomed fatigability and ready exhaustion, increasing inaptitude to physical or mental exertion together with nervousness, constipation and vague indefinite pains. There may be actual weight loss in the exceptional case. In the absence of other causes and particularly when accompanied by increasing sensitiveness to cold, this syndrome should suggest basal metabolic determination for possible subthyroidism. We have noted a peculiar thickening of the skin overlying the thyroid region in a good many of these cases. Not infrequently do we find frankly low readings in subjects presenting anything but the puffy impassive face of myxedema. Nor can we lose sight of other endocrine deficiencies such as pituitary cachexia which may depress metabolism as can the lowered nutritional levels of long-standing severe constitutional disease or starvation states. Such factors must always be ruled out by a comprehensive clinical survey because a low basal rate alone does not necessarily indicate hypothyroidism. The parallel clinical and laboratory response

to thyroid therapy is the ultimate criterion of correct diagnosis.

Atypical Hyperthyroid Disorders.—Because of their varied mode of onset, the early course of exophthalmic goiter and toxic adenoma may be quite indefinite and atypical. They may simulate other conditions so closely that differential diagnosis is extremely difficult.

Hyperthyroidism may lurk unsuspected in the shadow of some coexisting severe constitutional disease and remain unrecognized for a long period of time before its presence is realized. Associated hyperthyroidism will invariably aggravate an existing diabetes, myocardial insufficiency, angina, vascular hypertension or psychoneurotic disorder. Even peptic ulcer under effective medical control may be reactivated by superimposed thyrotoxicosis. It is well to remember that except in emergencies any other type of surgery is contraindicated before the thyroid is controlled, whether medically or surgically, because of the danger of thyroid crisis being precipitated by an operative procedure.

The beneficial influence of thyroidectomy on carbohydrate tolerance in the hyperthyroid diabetic is universally recognized and is the procedure of choice in the management of this type of case. Superimposed hyperthyroidism may render a diabetic unresponsive to previously effective insulin dosage or may even precipitate coma.

The onset of exophthalmic goiter or the awakening of toxicity in the simple adenoma of a person subjected to some repeated environmental irritation, emotional conflict or chronic fatigue may develop so insidiously as to escape detection for a long time unless the relationship of such exciting causes to thyroid overstimulation are constantly borne in mind. According to most recent writers the ultimate cause of hyperthyroidism is not to be sought primarily in the thyroid itself, but in impulses arising elsewhere and stimulating the gland to excess activity. Such things as the recently isolated thyrotropic hormone of the anterior pituitary, the recognition of autonomic imbalance as a predisposing factor in thyrotoxicosis and the influence of various exciting causes such as infection, emotional strain and nervous fatigue, indicate some of the divergent ways by which thyroid dysfunction may be brought about, each with a potentially different initial symptomatology, often quite atypical in its early clinical expression. The alert anxious face of typical hyperthyroidism with prominent eyes and bulging neck present no diag-

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From the Medical Department, St. Louis University School of Medicine.

nostic difficulty but the thyroid etiology of a vague tachycardia, palpitation and breathlessness associated with nervousness and loss of weight may long remain unsuspected because slight and early eye signs, or a fine tremor with warm moist palms, are either not detected or their significance not appreciated.

Atypical manifestations of exophthalmic goiter are apt to appear early in the course of the disease before the appearance of either exophthalmos or thyroid enlargement. These may simulate gastro-intestinal syndromes with attacks of vomiting or chronic diarrhea without colic or tenesmus.

Hyperthyroidism developing insidiously in an old long-standing adenoma may be overshadowed and obscured by cardiovascular symptoms such as hypertension, auricular fibrillation or perhaps a myocardial insufficiency gradually evolving into frank congestive failure. Inasmuch as basal metabolism determination under the circumstances is notoriously inaccurate if not entirely impossible, differential diagnosis from other types of heart failure must be based upon purely clinical evidence, by first ruling out the presence of any other etiological factor and secondly, by elicitation of a suggestive hyperthyroid history, such as progressive loss of weight in spite of maintained food intake, the presence of psychic and motor restlessness, increasing intolerance to heat and a warm moist skin most readily detected in the palm of the hand.

Palpitation and tachycardia of thyrotoxic origin does not respond well to digitalis but is best controlled by physical rest and mental quietude aided by mild sedatives and iodine together with a diet low in protein, free from caffeine and high in carbohydrate (augmented by liberal additions of dextrose.) In the presence of frank decompensation the indication for digitalis is the same as in any form of cardiac failure. Intravenous salyrgan with ammonium nitrate perorally is indicated for the relief of any appreciable degree of circulatory edema not controlled by rest, opiates, digitalis, iodine and fluid restriction. The striking relief obtained by adequate medical preparation and well timed surgery in this type of case constitutes one of the most satisfactory therapeutic responses obtainable in the treatment of cardiovascular disease.

Haines and Kepler¹ in a study of a group of hyperthyroid cases with associated coronary sclerosis concluded that anginal symptoms are practically always aggravated by

the thyroid condition and that noticeable improvement or cessation of symptoms follows thyroidectomy. A further development of the idea is seen in the interesting results obtained following total thyroidectomy in myocardial and anginal cases with normal thyroid function. In this way the metabolic demand upon the embarrassed circulation is further reduced.

Apathetic Hyperthyroidism.—Toxic adenomata in the elderly may produce an atypical picture in which the outstanding symptoms are merely gradual loss of weight and strength with dyspnea on exertion. These patients do not show the nervous irritability, mental alertness or cardiovascular overstimulation so characteristic of the typical hyperthyroid. This type has been graphically termed "apathetic hyperthyroidism" by Lahey. While their course is milder and toxicity lower, their operative mortality is higher probably because of associated myocardial degeneration attendant upon coronary sclerosis.

The relationship of hyperthyroidism to hypertensive disease is occasionally confusing. Certain dynamic hypertensive subjects are known to have moderately increased basal rates. Should such a case have lost weight because of some form of hypertensive dietary régime and present symptoms of vasomotor instability with perhaps some degree of thyroid enlargement, the circumstantial evidence suggesting hyperthyroidism may be quite misleading. Conversely, a hyperthyroid subject with high blood pressure may undergo prolonged observation and treatment for vascular disease without the underlying thyroid factor being suspected. Carefully elicited clinical evidence checked by repeated basal metabolic readings, or perhaps by a therapeutic trial with iodine, will usually offer a proper solution to this problem.

A frequent misinterpretation in the diagnosis of thyroid disease arises from the high initial metabolism occasionally obtained in nervous individuals with normal thyroid function. This is apparently caused by certain obscure physiologic disturbances producing physical changes that simulate some of the phenomena of hyperthyroidism. Such individuals because of restlessness are unable to attain the state of physiologic relaxation and rest sufficient to allow their metabolic rate to be truly representative at the time of the test. In cases in which such conditions are noticeable several successive tests must be made before they can be prop-

erly interpreted. The patient becoming more assured through experience will often be better able to cooperate. We have found the use of sodium bromide or phenobarbital administered an hour before the basal determination to be of distinct value in the proper evaluation of the test. These mild sedatives do not reduce tissue oxidation as do the opium derivatives.

One of the most useful procedures in establishing the diagnosis of suspected exophthalmic goiter in atypical cases having high basals but no eye signs or thyroid enlargement, is the clinical and basal metabolic response to iodine. The most striking drop usually occurs in about one week. It would therefore be unsafe to judge the thyroid normal in an individual who has recently received iodine. The basal rate begins to rise again about the fifth day after iodine has been stopped.

SUMMARY

In suspected cases of obscure hyperthyroidism an analytical history of the nature and onset of the symptoms, the occurrence of weight loss in spite of normal or increased food intake, the change of tolerance to environmental temperature and of gradual development of breathlessness and palpitation on excitement as well as exertion, will often give a clue to the diagnosis. Physical examination, even though eliciting no conclusive thyroid enlargement or exophthalmos, may reveal such suggestive signs as increased perspiration, fine tremor, pigmentary changes, flushing of the cervical and necklace area, and slight ocular changes such as staring. Suggestive cardiovascular signs include high pulse pressure, increased pulse rate and an overstimulated apex impulse. The warm, moist, tremulous hand of the hyperthyroid will often help in differentiating from the vasomotor neurosis subject, presenting similar symptoms but having characteristically cold clammy hands.

Carefully performed and checked metabolism determinations together with trial therapeutic use of iodine in the suspected hyperthyroid and thyroid substance in the surmised hypothyroid, represent the ultimate criteria for differential diagnosis in the atypical case which cannot be definitely placed from clinical examination alone.

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BIBLIOGRAPHY

1. Haines, S. F., and Kepler, E. J.: Angina Pectoris Associated With Exophthalmic or Hyperfunctioning Adenomatous Goitre, *M. Clin. N. Amer.* **13**:1317-24 (May) 1930.

TUBERCULOSIS OF THE AXILLA AND VULVA

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Of the numerous manifestations of tuberculosis and of the various parts of the body affected by it, the axilla and vulva are perhaps as infrequently infected as any.

That tuberculosis of the axilla is comparatively rare may be deducted from the fact that the *Quarterly Cumulative Index Medicus* does not list any references in the literature for the years 1921 to 1933, inclusive. K. Bhushan¹ reported a number of cases from India in 1920.

Concerning the frequency of tuberculosis of the vulva, Berkley,² Simmons³ and Schlinpert⁴ have shown that among 12,114 autopsies upon tuberculous women, genital tuberculosis was present in 215 subjects, but in none was the external genitals involved.

Of over 6000 gynecologic specimens in the laboratory of gynecological pathology of the University of Pennsylvania,⁵ only two specimens of tuberculosis of the vulva could be found.

Barnes, Wm. H., reported a case in 1930. In 1915 Buckley⁶ reported a case and also



Fig. 1. Tuberculous lesions of axilla and vulva.



Fig. 2. Tuberculous lesions of vulva.

gave a review of the literature up to that time. He states that "the first undoubted cases were reported independently in 1881 by Cayla and Winckel, and that since 1881 only seventy-one cases have been reported."

The condition may be found at any age but the largest number of cases have been reported between the ages of 30 and 40. In a considerable number of the cases reported in Buckley's paper there appears to be a history of trauma which could be considered as a contributory cause. However, it is very difficult in most cases to point out the mode of infection. Among the more common



Fig. 3. Tuberculous lesions of axilla.

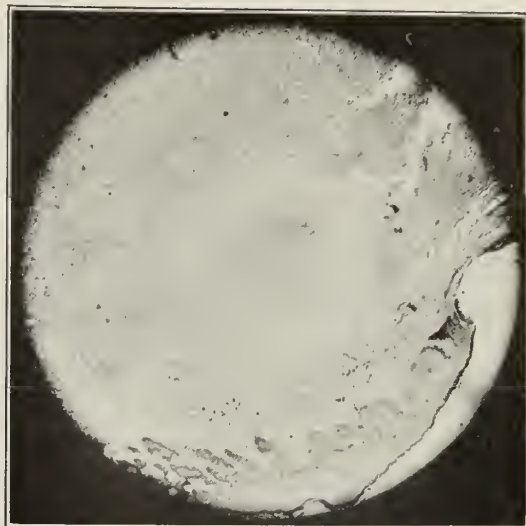


Fig. 4. Low power photomicrograph from biopsy of the vulva.

causes are sputum, coitus, masturbation, clothing, pessaries, douche tips, wash cloths, baths, toilets and air infection.

The case I am reporting has both axillary and vulvar tuberculosis and since the history given by the patient is unreliable, it is impossible to say which one started first; however, it is quite probable that the infection was spread by the fingers from one to the other.

REPORT OF CASE

This patient is suffering from a mental condition and is a patient in a hospital for the insane. The mental condition is not important to the subject and will not be discussed except to say that because of it



Fig. 5. High power photomicrograph from biopsy of the vulva.

the history given is rather incomplete and of questionable veracity.

Miss F. S., on a previous admission to this hospital (May, 1927) the physical examination described an infiltration in the neck with no more detail and the apices of both lungs were dull posteriorly. She had poor vision and an ophthalmoscopic examination revealed a retinitis pigmentosa.

At the time of her present admission, September 21, 1932, the physical examination described palpable lymph glands in the neck and in the inguinal region.

Family History.—(Given by relatives.) Paternal grandparents died at the ages of 80 and 86 of infirmities of age. The maternal grandparents died at the ages of 72 and 82 of paralysis. Father died at age of 60 of cancer of the throat. He was addicted to the use of alcohol. Mother is living at age of 70. There is no consanguinity of parents.

Personal History.—(According to relatives.) At the time of her birth her mother had a difficult labor but no instruments were used. She has had weak eyes since childhood. Started to school at 6 years and quit school on account of her eyes at the end of her second year of high school.

Menstruation started at 17 years and she experienced considerable difficulty with it. She has had no serious illness. She has never been married.

Present Illness.—Patient states that the skin lesions of the axilla have been present about four years. She gives a history of a knitting needle being accidentally stuck in her right axilla; the wound became infected and has never healed. She states that the lesions developed in the left axilla following the right and later the vulva became involved.

Patient's brother states that the condition has been present in the right axilla three years, to his knowledge.

Physical Examination.—Patient is a well nourished white female, about 40 years of age, lying quietly in bed in no apparent discomfort.

The head is well formed. There are several papulopustular lesions at about the margin of the hair on the back of the neck; otherwise the scalp is clear with no scars or deformities. Normal distribution of brown hair. The pupils are round, regular and equal and react fairly well to light, both direct and consensual. Vision is practically nil. Can distinguish fingers at about eight inches but unable to count them. Can distinguish between light and dark. Ophthalmoscopic examination reveals post polar cataracts and retinitis pigmentosa. Hearing is slightly subnormal in both ears but normal to external appearance. The nose is normal to external appearance. Some upper teeth replaced by bridge work. All remaining teeth in good state of repair. Tongue protrudes in midline, no tremors. Mucous membrane of mouth and throat appears normal. The thyroid is not enlarged. No palpable lymph glands and no visible pulsations. The thorax is normal in contour; no eruptions. Breasts are rather small and are normal. Chest gives a diminished resonance to percussion over both apices posteriorly, more marked on the left. Also some dullness to percussion over apices anteriorly. Breath sounds are bronchovesicular and voice sounds are transmitted louder than normal over the same area. Remainder of chest is normal to percussion and auscultation. The heart is enlarged slightly, lateral to mid-clavicular line. Regular in time and force. There is a systolic murmur at the apex transmitted toward the axilla. Blood pressure 116/74. The abdomen is normal, contour rounded; no tenderness or rigidity or palpable masses or organs.

Pelvic Examination.—There is considerable swelling

and discoloration of the vulva and hypertrophy with ulceration. The condition extends from the symphysis pubis anteriorly to and surrounding the anus posteriorly. It is dusky-red in color and rather nodular throughout. There is pus and seropurulent discharge exuding from many of the hair follicles. The subcutaneous tissue is very friable so that a probe may be inserted into any of the numerous openings exuding pus and easily pushed through the tissue in any direction. There is a very small perforation of the hymen (about $\frac{1}{4}$ inch) which does not permit digital examination. No vaginal discharge has been noticed.

Rectal Examination.—A small retroflexed uterus is felt. No masses are palpable within the pelvis and there is no tenderness.

Extremities (Upper).—There is a lesion in each axilla of the same general character as that seen on the vulva. It is more marked in the right axilla than in the left. In each axilla there appears to be a tendency toward healing in some places with the formation of scar tissue. There is a scar on the medial side of each little finger, at about the metacarpophalangeal joint (from the amputation of rudimentary 6th fingers).

Extremities (Lower).—There are no palpable lymph glands in the inguinal region and the lower extremities are normal except that there are six toes on the left foot, and a scar on the right foot on the lateral side of the little toe, where a sixth toe had been amputated.

Deep tendon reflexes are rather sluggish but equal on the two sides. Babinski negative.

Laboratory Reports.—W. B. C. 9700. R. B. C. 4,000,000. Hb. 53 per cent. Differential count; small lymphocytes 30, large lymphocytes 1, large mononuclears 3, transitional 2, polynuclears 64. Sedimentation time, 18 mm. in 15 min. (Lin Zenmeier method.) Blood Wassermann negative. Cerebrospinal fluid Wassermann negative. Colloidal Gold, 0000000000; cells 0. Globulin negative. Blood sugar .107.

Urine, amber color, acid reaction. Sp. Gr. 1.018. Albumin negative. Sugar negative. Microscopic, few squamous epithelial cells. Roentgen ray of chest reveals no active tuberculosis, possibly some inactive or healed tuberculosis. Pyelogram made after retrograde injection of sodium iodide discloses no pathology of kidney pelves. Guinea pig injected with catheterized specimen of urine and killed after 2 months revealed no evidence of tuberculosis. A piece of tissue taken from the vulva and sectioned was diagnosed microscopically as "active subcutaneous tuberculosis" by the pathologist of the Missouri University School of Medicine.

The patient has complained of no pain in the affected parts. Her temperature is usually normal, occasionally an afternoon rise to 99 or 100.

She has received generalized ultraviolet radiation for about 8 or 9 months, and has made some improvement during that time. Two small areas have been treated with radium, have healed over and are apparently well. Her weight has remained fairly constant, about 138 to 140 pounds. She is continuing treatment.

State Hospital Number 1.

BIBLIOGRAPHY

1. Bhushan, K.: Tuberculous Glands in Axilla, Indian M. Gaz. 5:416 (November) 1920.
2. Berkeley, C.: Genital Tuberculosis in the Female, J. Obst. & Gynec. Brit. Emp. 3:31-45, 1903.

3. Simmons, M.: Ueber Tuberculose des weiblichen Genital apparatuses, Arch. f. Gynäk. **88**:29-59, 1909.

4. Schlimpert, H.: Die Tuberculose bei der Frau, insbesondere die Bauchfell- und die Genitaltuberculose, die Tuberculose des urogenitalen Systems, die Tuberculose während Schwangerschaft und Wochenbett, auf Grund von 3514, Sektionen, Arch. f. Gynäk. **94**:863-925, 1911.

5. Charles C. Norris: Gynecological and Obstetrical Monographs, New York, D. Appleton & Co., 1922.

6. Bulkley, K.: Tuberculosis of the Vulva, Am. J. M. Sc. (April) 1915.

THE SITE OF ACTION OF DRUGS ON THE OCULO-AUTONOMIC SYSTEM

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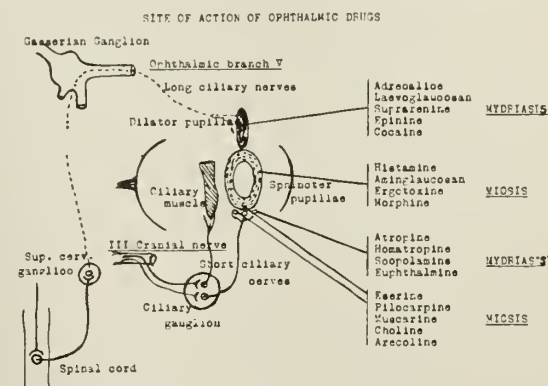
The effects of the local use of drugs commonly used in ophthalmology are well known and certain disorders of the eye indicate definitely which to employ therapeutically. There are other conditions in which the indications for treatment are not so clear and in which a knowledge of the site of action and mode of action of these drugs on the sympathetic and parasympathetic nerve supply of the eye would aid greatly in the choice of the agent particularly adapted to the condition present.

If mydriasis or miosis is desired it is of importance to know how the effect is brought about. It should be remembered that the local action may vary with different systemic conditions and these variations have been suggested as diagnostic signs for the underlying disease. For example, Loewi¹ claimed that mydriasis after local applications of epinephrin indicated pancreatic insufficiency and hyperthyroidism. In these conditions the sympathetic mechanism is abnormally sensitive and epinephrin stimulates the sympathetic dilator fibers.

The intra-ocular muscles (sphincter pupillae, dilator pupillae, and ciliary muscle) are maintained in a constant state of tonus by reciprocal innervation. Efferent impulses are supplied to the dilator pupillae from the cervical sympathetic by the long ciliary nerves. Efferent parasympathetic impulses to the sphincter pupillae and ciliary muscle are relayed to the iris and ciliary body by the short ciliary nerves, postganglionic fibers from the ciliary ganglion. In addition to the supply to the intra-ocular muscles there are vasomotor nerves to the orbit and globe, fibers to Müller's muscle and secretory fibers to the lacrimal glands. The lacrimal gland also receives parasympathetic VII nerve fibers from the sphenopalatine ganglion.

The function of these in lacrimal secretion is still in doubt.

Mydriasis.—Atropine, homatropine, scopolamine, euphthalmin and other drugs of the



atropine series produce their effect by interrupting the parasympathetic pathway. The action of these drugs is to depress the myoneural junctions in the circular muscle of the iris. This is shown by the fact that stimulation of the oculomotor nerve or of the short ciliary nerves from the ciliary ganglion is without effect on the pupil. This proves that the paralysis is peripheral. That the muscle itself is not affected is shown by its contraction to electrical stimulation. The receptor for these alkaloids therefore must be situated in the muscle between the nerve ends and the contractile substance. The dilation of the pupil affected by atropine is not quite maximal and can be increased by stimulation of the cervical sympathetic.

Adrenalin, levoglucosan, suprarenin, epinephrin and cocaine produce their mydriatic effect by stimulation of sympathetic pathways. The action is due to a stimulation of the myoneural junctions in the dilator muscle. An exception to this site of action of cocaine was contended by Kuroda² who claimed that the pupillary dilation was due to direct action on the iris musculature thus weakening the sphincter. This contention was denied by Miller³ who found that cocaine produced no appreciable weakening of the sphincter of the rabbit, nor had it any effect on the isolated sphincter of the ox or dog. He showed, moreover, that the classical view that cocaine relaxed plain muscle was based on experiments wherein the drug had been used in such great concentration that it acted as an anesthetic and therefore as a protoplasmic poison. Duke-Elder⁴ concluded that the action of this drug is excitatory to the sympathetic.

Miosis.—Pilocarpin, muscarin, cholin and arecolin produce constriction of the pupil by

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From the Department of Ophthalmology, Washington University School of Medicine.

stimulating the parasympathetic pathways. Eserin, which has a stronger and more lasting effect, is not a stimulant of the parasympathetic pathways but increases the irritability of the oculomotor end apparatus. It is ineffective, therefore, if the oculomotor nerve is sectioned. Consequently, when oculomotor impulses are rendered ineffective by atropin eserine has no miotic action.

Pilocarpin has a weaker effect and one of shorter duration, but unlike eserine stimulates the parasympathetic end apparatus directly, the site of action being the myoneural junction, the same receptor which atropin paralyzes.

Histamin, aminglaucosan and ergotoxin (ergot derivatives) produce miosis by direct stimulation of sphincter muscle fibers. They are powerful miotics and inasmuch as the action is directly on the muscle the action cannot be counteracted by atropin. Hamberger⁵ reported the maximal contraction of the pupil even when under the influence of atropin.

There are many reports of the combined effect of drugs to enhance a desired action: Rodin's⁶ technic in treating iridocyclitis with adhesions by the subconjunctival injection of atropin and adrenalin is in wide use. Brown⁷ and others have used similar combinations in breaking adhesions using varying proportions of atropin, adrenalin and cocaine. The advantage of the addition of adrenalin and cocaine to the atropin is due to the direct stimulation of the sympathetic pathways to the dilator pupillae muscle.

When maximal mydriasis is desired for any other purpose the use of the sympathetic stimulating drugs is indicated. Hartgraves and Kronfeld⁸ reported that in all cases of a series cocaine and adrenalin added to a complete atropin mydriasis still further increased the size of the pupil. In operations when the anterior chamber is opened it is often desirable that mydriasis be maintained throughout the operation. The atropinized pupil tends to contract when the chamber is entered. The Barkan⁹ procedure for the extraction of cataract thus has for its main feature the maximal dilatation of the pupil by the subconjunctival injection of adrenalin. Ellett¹⁰ noted that the pupil dilated by levoglaucon did not contract when the anterior chamber was opened during operation. There are many other indications for the use of atropin and adrenalin in combination, the combined action of the drugs of these two groups being one of the best examples of synergistic action in ophthalmology.

It is sometimes desirable to dilate the pupil of the eye in the presence of increased intra-ocular pressure. Here again it is important to know how the action is to be brought about and the drugs acting on the sympathetic dilator fibers are very useful. Adrenalin, levoglaucon, suprarenin, epinephrine and cocaine can be used where drugs of the atropin series are contraindicated.

Shortly after the introduction of levoglaucon it was thought by some that this drug might be useful in the treatment of iridocyclitis complicated by increased tension. Reports are that it is frequently unsuccessful in these cases. This does not seem strange when we consider that, although this drug does produce dilatation of the pupil, ciliary rest is not obtained, the action being solely on the sympathetic dilator pathways.

A consideration of the site and mode of action of drugs is also of importance when we use them not as synergists but as antagonists. Pilocarpin, for example, is the direct antagonist of atropin. It stimulates the myoneural junctions of the parasympathetic fibers in the sphincter muscle, the same end apparatus which atropin paralyzes. Eserine has an entirely different mode of action, that of increasing the irritability of the end apparatus. Thus when atropin has intercepted the parasympathetic pathways, eserine is ineffective. Marui states that a combination of pilocarpin and eserine is not more effective than efficient doses of either.

The ergot derivatives which produce miosis by direct stimulation of the sphincter fibers are extremely powerful and contract the pupil maximally, even when under the influence of atropin. Hamberger states that aminglaucosan contracts the atropinized pupil and this drug is claimed to be the strongest miotic known. The miosis is unaffected by atropin and adrenalin or sympathetic stimulation produces only a slight dilatation. These latter drugs while not often used can be of definite help in acute glaucoma or after the inadvertent use of atropin to counteract its effect.

A consideration of these facts in regard to the site of action and mode of action of ophthalmic drugs on the oculo-autonomic nervous system will aid us greatly in their use in synergistic combination or as antagonists.

3720 Washington Boulevard.

BIBLIOGRAPHY

1. Loewi, O.: Über humorale Übertragbarkeit der Herznervenwirkung. *Arch. f. Psychiat.* **189**:115, 1920.
2. Kuroda, M.: On the Action of Cocaine. *J. Pharmacol. & Exper. Therap.* **7**:423, 1915.

3. Miller, G. H.: The effect of Cocaine on the Iris Compared With Its Effect on Certain Other Structures Containing Smooth Muscle, *J. Pharmacol. & Exper. Therap.* **28**:219, 1926.
4. Duke-Elder, W. S.: *Textbook of Ophthalmology*, St. Louis, C. V. Mosby Co., 1:219.
5. Hamberger, C.: Das starkste Miotikum, *Klin. Monatsbl. f. Augenh.* **76**:849, 1926.
6. Rodin, F. H.: Treatment of Iridocyclitis by Subconjunctival Injections of Atropin and Epinephrine, *Am. J. Ophth.* **9**:24, 1926.
7. Brown, A. L.: Subconjunctival Injections of Atropin and Adrenalin in Iridocyclitis, *Am. J. Ophth.* **12**:8, 1929.
8. Hartgrave, H., and Kronfeld, P. C.: Synergistic Action of Atropin and Adrenalin, *Am. J. Ophth.* **13**:1101, 1930.
9. Barkan, Otto: A Procedure for the Extraction of Congenital, Soft and Membranous Cataracts, *Am. J. Ophth.* **15**:117, 1932.
10. Ellett, E. C.: Action of Adrenalin on the Pupil, *Am. J. Ophth.* **7**:57, 1928.

THE THERAPEUTICS OF THE COOK COUNTY HOSPITAL: FUSOSPIROCHETOSIS (FUSOSPIRILLOSIS)

The therapy of fusospirochetosis (fusospirillosis) as practiced by the attending staff of the Cook County Hospital is presented by Bernard Fantus, Chicago (*Journal A. M. A.*, March 2, 1935). Two special localizations of the infection are discussed: oropharyngeal and bronchopulmonary. Correct diagnosis is of great importance, because treatment is almost specific.

HYPOPHYSEAL GONADOTROPIC HORMONES

Philip E. Smith, New York (*Journal A. M. A.*, Feb. 16, 1935), points out that work on the gonadotropic substance from the hypophysis and from other sources (from castrate and menopause urine) strongly indicates that the principle commonly designated as the gonad-stimulating principle is composed of two principles. One of these, a gametokinetic (follicle stimulating) principle, has been secured in a fair degree of physiologic purity by fractionation of the anterior hypophysis, and it is also present with little or no contamination with other hormones in the blood and urine after the menopause and ovariectomy. Work with the other principle is somewhat less satisfactory.

IS NEPHRECTOMY ALWAYS INDICATED FOLLOWING DIAGNOSIS OF UNILATERAL RENAL TUBERCULOSIS?

Stanley R. Woodruff, Jersey City, N. J., and Hermon C. Bumpus, Jr., Pasadena, Calif. (*Journal A. M. A.*, March 2, 1935), are of the opinion that the keynote of whatever form of treatment is adopted must place emphasis on the fact that there should be no hurry about operative removal of a tuberculous kidney. It is never an emergency procedure, and there can be no excuse for neglecting the most painstaking examination to be certain that the remaining kidney is not involved. To perform a nephrectomy on a kidney from which the only evidence of tuberculous infection is the presence of organisms, with possibly a few red blood cells and an occasional leukocyte, and a few months later have the disease appear in the remaining kidney is, as Henline has stated, poor judgment. With the increase in accuracy of diagnosis and the frequent discovery of the disease in symptomless cases, this unfortunate outcome should be assiduously avoided. The process of prolonged watchful waiting should be insisted on in behalf of those patients in the adolescent period, as it has been agreed that younger

patients are more prone to bilateral involvement than those of more advanced age and that nephrectomy should be performed only when definite cavitation exists. The coexistence of genital and renal tuberculosis gives preference to the former when operative procedure is indicated. The result of the renal functional test is a most excellent guide in determining the time for operation. If this remains normal, or nearly so, the disease has probably not advanced to any great degree; but a marked decrease in the amount of dye excretion, which can be demonstrated by the intravenous urogram as well as by the color dyes, would appear to show the necessity of surgical intervention. There is little danger of the infection of one kidney by the other except through a deposit of the tubercle bacilli into the blood stream. Lymphatic connection between the two is not constant, and since the lymphatics of the kidney are practically all of the efferent type, such a contingency may usually be dismissed. If there is vesical irritation or other evidence of beginning tuberculous cystitis, the question of the advisability of nephrectomy no longer exists. In cases in which the disease has advanced sufficiently to show unmistakable roentgenographic changes in the pyelogram, no question of the desirability of nephrectomy can be entertained. The case that gives questionable roentgenographic evidence of the disease and in which the tuberculous infection has caused so little damage as to produce but a few pus cells in the urine together with the organisms deserves sanatorium care and observation rather than immediate nephrectomy.

TWO CARDIAC COMPRESSION TRIADS

Claude S. Beck, Cleveland (*Journal A. M. A.*, March 2, 1935), points out that lesions of the pericardium produce either acute or chronic compression of the heart. In this respect the intrapericardial lesion producing compression of the heart is exactly similar to the intracranial lesion producing either acute or chronic pressure on the brain. The intrapericardial lesion, like the intracranial lesion, produces clear and distinctive earmarks for recognition. In the case of the heart the earmarks for both acute and chronic compression can be reduced to three essential components. The acute cardiac compression triad consists of (1) a falling arterial pressure, (2) a rising venous pressure and (3) a small quiet heart. All other clinical manifestations of acute compression are secondary to this triad. The chronic cardiac compression triad consists of (1) a high venous pressure, (2) ascites and (3) a small quiet heart. All other clinical manifestations of chronic compression are secondary to this triad. Cardiac compression should be regarded as diametrically opposite to cardiac dilatation. Not only are the triads of acute and chronic compression useful in diagnosis but, emphasizing as they do the mechanical aspects of two large groups of disorders, they should be useful in determining the nature of the treatment that should be given. The treatment of such mechanical disturbances obviously is surgical. Many of these compression syndromes are recognized as surgical lesions. The question arises as to whether or not some of the lesions in the nonsurgical group can be placed in the surgical group. Perhaps some of the cases of spontaneous rupture of ventricles and auricles could be saved by operation. Undoubtedly the cases of acute and chronic compression of the heart offer opportunities for surgical intervention, and diagnosis is imperative. When the diagnosis is in doubt, exploratory pericardiectomy should be regarded as a justifiable procedure.

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APRIL, 1935

EDITORIALS

HOSPITAL MANAGEMENT

A new method of hospital administration inaugurated in the Christian Hospital, St. Louis, has claimed the accord of the medical profession. Through the appointment of a physician as medical director and the adoption of a plan of management which places in his hands the medical administration and control of the hospital, the management reflects the wishes and ideals of the practicing physicians. Of the new plan the *Weekly Bulletin* of the St. Louis Medical Society says:

Under the new plan of administration the medical director has been given power to control the appointment of medical and lay personnel of this hospital, and to require that they perform their duties efficiently and conscientiously and may remove, for cause, any employee who is derelict in his duty. He has a responsibility to see to it that the medical policies of the hospital shall conform in every particular to the wishes of the medical staff and the medical staff naturally will follow the wishes of the St. Louis Medical Society in all matters relating to ethics and contractual relations with the laity. In this connection we invite particular attention to article 4 in the contract entered into between the corporation board and the medical board, namely: "No contract shall be entered into by the management, or become valid, in the matter of group, insurance, or part-pay patients in the Christian Hospital without conference with the executive committee of the visiting staff and with the written approval of the medical director."

In addition the plan of management decrees that the medical director shall represent the hospital in all inter-hospital conferences; shall have sole authority over medical equipment; shall have charge of the staff, and make appointments to the nursing and intern staffs.

Dr. Cleveland H. Shutt, St. Louis, was appointed medical director of the hospital February 18 and assumed his duties at once.

The hospital is controlled by a corporation board composed of women from the Christian Church.

PHYSICIANS AND THE OPTICAL RETAIL CODE

An attempt was made recently by the Optical Retail Trade Code Authority to subject physicians practicing ophthalmology to the Optical Retail Trade Code. In the March 9 issue of the *Journal* of the American Medical Association this attempt is discussed as follows:

Demands are being made by the Optical Retail Trade Code Authority, in a letter addressed "To Oculists and Physicians Dispensing Ophthalmic Products," that the physician to whom it is addressed fill out a questionnaire relative to the nature and extent of the physician's optical business and pay assessments amounting to \$3 for each employee in his service. It is asserted that "physicians selling glasses or servicing prescriptions" come fully within the scope of the Optical Retail Code. The assessment is for the support of the Optical Retail Trade Code Authority, a trade organization. The Optical Retail Trade Code Authority, by which these demands have been made, is organized under the National Industrial Recovery Act. The National Industrial Recovery Act does not purport in any way to regulate or control the practice of medicine. It specifically relates to "industry" and "trade" and to industrial and trade associations or groups. It relates only to transactions in or affecting interstate or foreign commerce. Under no provision of the act can a physician who confines his work to rendering professional medical services be subjected to any provision of the code or to any assessment under the code. A person who on his own account commercially buys and sells eyeglasses and spectacles and makes a commercial profit on the transaction is presumably within the purview of the Optical Retail Trade Code, even though he happens to be a physician. A physician, however, who buys and sells eyeglasses and spectacles only as the agent of patients for whom he prescribes them and without making any commercial profit on the transaction is not within the terms of that code. The fact that a physician charges for his professional services in prescribing and fitting glasses and spectacles does not alter the situation. The American Medical Association has protested against the attempt of the Optical Retail Trade Code Authority to bring physicians as such within the scope of the code that it administers. Pending the adjustment of those protests, physicians who are engaged in strictly professional work are advised to refrain from answering the questionnaire sent them by the Optical Retail Trade Code Authority and to refrain from paying the attempted assessment for the support of that code authority. The outcome of the protest will be promptly reported in the *Journal*.

DIPHTHERIA CAMPAIGNS IN ST. LOUIS AND KANSAS CITY

An active campaign against diphtheria will be conducted in both St. Louis and Kansas City during the month of April. In St.

Louis the Health Department will particularly stress the educational phase looking toward active work throughout the year. In Kansas City immunization will be stressed by the Health Department and the Jackson County Medical Society.

While St. Louis has made an enviable health record at various times, the incidence and death rate from diphtheria has not been a factor in promoting such records.

In 1931 a three-year campaign against diphtheria in the City of St. Louis and in St. Louis County was inaugurated by the health departments of the city and county and the St. Louis Health and Hospital Council. The St. Louis Health Department will again this year conduct a campaign against diphtheria. While the morbidity and mortality rates for diphtheria decreased consistently from 1924 through 1932 there was an increase in 1933 and the rates were felt to be too high during the other years in spite of the constant decrease.

St. Louis tied for the best infant mortality rate in the ten largest cities in the country in 1933. In this same year St. Louis had the second highest mortality rate for diphtheria. Chicago with a population four times as large as St. Louis had the lowest mortality rate for this disease. Diphtheria caused 10 per cent of the cases of acute communicable disease and was responsible for 20 per cent of the deaths in St. Louis in 1933. A survey* of the diphtheria problem of St. Louis, which was published in the March issue of *THE JOURNAL*, gives irrefutable proof that diphtheria is a problem the curbing of which merits the best efforts of physicians and health authorities.

Industrial, charitable, religious and social organizations have been enlisted by the Health Department of the St. Louis Department of Public Welfare to aid in reaching the laymen during the April campaign. A mass meeting for the public will be held at the Auditorium on April 4. Among speakers at this meeting will be the Health Commissioner, the Director of Public Welfare, the Mayor and representatives from the two universities. The need of an adequate number of public health nurses and of a continuous campaign against diphtheria, which is possible only with a sufficient number of nurses, will be stressed in the April program.

For the benefit of physicians the first session of a course on communicable diseases given under the auspices of the St. Louis Health Division cooperating with the Hos-

pital Division will be devoted to diphtheria. This session will be held at the Isolation Hospital on April 1 from 9:30 to 11:30 a. m. The session will be opened by Dr. Ralph L. Thompson, hospital commissioner of St. Louis, and the following short addresses will be given: "Diphtheria as a Problem to St. Louis," Dr. Joseph F. Bredeck; "The Clinical Course of a Typical Case of Diphtheria," Dr. J. Eschenbrenner; "The Throat in Diphtheria: Differential Diagnosis," Dr. T. C. Hempelmann; "Incubation Period and Method of Control," Dr. E. Sigoloff; "Preventive Treatment: Alum Precipitated Toxoid," Dr. M. P. Morrell; "Specific Treatment of Diphtheria," Dr. Henry Ulrich, and "Fifty Years of Diphtheria in St. Louis and the Outlook for the Future," Dr. H. I. Spector. Demonstrations will be "Patients With Diphtheria," Dr. Marvin Haw; "Bacillus Diphtheria," Dr. J. C. Willett; "Technic of Diphtheria Immunization," Drs. J. E. Smith and Fred Kramer; "Demonstration of Schick Test," Drs. M. Baron and Jos. B. Grindon; "Administration of Toxin-Antitoxin," Dr. Marvin Haw, and "Intubation for Diphtheria (If Possible)," Dr. J. Eschenbrenner.

In March of 1934 there were 7000 immunizations given in Kansas City and no diphtheria patient has asked admittance to the General Hospital in the last year who had had one injection of alum precipitate toxoid. Of the 7000 immunizations given during March of last year 5300 were given by the child's own physician. During the last twelve months 2968 children have been immunized at the Kansas City General Hospital.

The case rate of diphtheria dropped from eighty-four cases for the period of May 1, 1933, to January 1, 1934, to forty-nine in the same period in 1934. Diphtheria patients in the General Hospital for the same period dropped from sixty to thirty. The number of deaths for these two periods were six and five respectively.

On the four Saturdays in April physicians will give the one dose alum precipitate toxoid between 10 a. m. and noon. The charge will be \$1, the Health Department supplying the material. In this manner diphtheria immunization is placed in the hands of the child's physician. By constant checking by physicians of children they may see in their offices throughout the year and the yearly campaign, Kansas City has been able to show a much lower diphtheria case and death rate than is found in the country as a whole.

*Sigoloff, E.: The Diphtheria Problem in St. Louis, *J. Missouri M. A.* 32:103 (March) 1935.

KANSAS CITY INVITES THE AMERICAN MEDICAL ASSOCIATION FOR 1936 SESSION

Kansas City, through the Jackson County Medical Society, has invited the American Medical Association for the 1936 session. The new Municipal Auditorium is now in process of completion and original plans were altered to conform to suggestions from the American Medical Association headquarters. Kansas City hotel accommodations are more than ample.

Delegates from Missouri, Kansas, Oklahoma and Nebraska worked effectively in prompting enthusiasm for the Kansas City invitation at the recent special session in Chicago. The decision rests with the House of Delegates of the American Medical Association. After the accommodations and arrangements have been approved by the Board of Trustees the competition between cities for this large annual American Medical Association meeting is always keen. The requirements for the sixteen section meetings and the scientific and commercial exhibits are most exacting. With the huge new Municipal Auditorium in the midst of the hotel section, Kansas City for the first time is in a position to entertain the American Medical Association, the American Dental Association and the American Hospital Association. Kansas City and the Jackson County Medical Society are appreciative of the support of the officers and delegates of the Missouri State Medical Association.

THE EXCELSIOR SPRINGS SESSION 78TH ANNUAL MEETING

The Seventy-Eighth Annual Session of the Missouri State Medical Association will meet in Excelsior Springs, May 6, 7, 8 and 9. All general sessions will be held in the Elms Hotel in the Ballroom on the main floor.

The Clay County Medical Society under the chairmanship of Dr. Joseph Dauksys, Excelsior Springs, has been active in their work and plans for the meeting are progressing in a way which promises an interesting and successful session.

The scientific program covers many fields and contains contributions by men who have become eminent not only in their own state but nationally.

On Tuesday evening Dr. Austin A. Hayden, Chicago, Secretary of the Board of Trustees of the American Medical Association, will show a motion picture depicting the activities of the organization at the Asso-

ciation headquarters in Chicago. Following this picture Dr. R. G. Leland, Chicago, Director of the Bureau of Medical Economics, will be presented on Monday evening.

A short program on "Physical Therapy" will present a treatise on medical economics. Several men, well acquainted with these problems, will discuss Dr. Leland's address.

An entertainment and a Dutch lunch will be given by the Clay County Medical Society Wednesday evening.

Dr. Cecil S. O'Brien, Iowa City, Iowa, professor of ophthalmology, State University of Iowa College of Medicine, will conduct a clinic or table demonstration on Thursday morning. The session on Thursday afternoon will be devoted to a presentation of discussions on diseases of the eye, ear, nose and throat as has been customary for the last several years. Dr. Robert Forgrave, St. Joseph, is chairman of this session and Dr. Charles H. Tooker, St. Louis, is secretary.

A portion of Thursday morning will be devoted to a clinic and presentation of cases sponsored by the Clay County Medical Society at the Veterans Hospital.

The number and scope of scientific exhibits is unusually large and interesting.

Following are the local committees:

Local Committee on Arrangements: Dr. Joseph Dauksys, Excelsior Springs, chairman; Drs. Eugene B. Robichaux, J. E. Baird, J. E. Musgrave and J. J. Gaines, Excelsior Springs.

Registration: Dr. J. E. Baird, Excelsior Springs, chairman; Dr. H. O. Leinhardt, North Kansas City, and Dr. Burton Maltby, Liberty.

Finance: Dr. J. E. Musgrave, Excelsior Springs, chairman; Dr. W. J. James, Excelsior Springs, and Dr. F. H. Matthews, Liberty.

Clinics: Dr. J. A. Howell, Excelsior Springs, chairman; Dr. Eugene B. Robichaux and Dr. Robert C. Cook, Excelsior Springs.

Entertainment: Dr. E. C. Robichaux, Excelsior Springs, chairman; Dr. W. L. Wyssong, Liberty, and Dr. J. E. Baird, Excelsior Springs.

Hotels: Dr. Eugene B. Robichaux, Excelsior Springs, chairman; Dr. J. E. Musgrave, Dr. Y. D. Craven and Dr. C. H. Suddarth, Excelsior Springs.

Publicity: Dr. S. R. McCracken, Excelsior Springs, chairman; Dr. W. N. Cuthbertson, Liberty, and Dr. Harry R. Staley, North Kansas City.

Reception: Dr. J. H. Rothwell, Liberty, chairman; Dr. S. D. Henry and Dr. H. J. Clark, Excelsior Springs; Dr. R. E. Sevier, Liberty; Dr. J. F. Rupe, Smithville, and Dr. J. W. Epler, Kearney.

Scientific Exhibits: Dr. W. H. Goodson, Liberty, chairman; Dr. N. R. Schumacher, Kearney, and Dr. Joseph Dauksys, Excelsior Springs.

Transportation: Dr. John F. Grace, Excelsior Springs, chairman; Dr. John H. Roberson, Kearney, and Dr. Alexander Braze, Smithville.

A preliminary announcement of the papers to be presented at this Annual Session appears on page 160.

HOTELS AND RATES AT EXCELSIOR SPRINGS

Reservations for the forthcoming Annual Session of the State Medical Association to be held in Excelsior Springs, May 6, 7, 8 and 9, should be made in advance of the meeting. On advertising page 16 a list of the hotels is published with the rates and other information. A reservation form is also printed which members are requested to fill in and forward as soon as possible to Dr. Eugene B. Robichaux, Excelsior Springs, chairman of the Committee on Hotels.

NEWS NOTES

Dr. John Caulk and Dr. Q. U. Newell, St. Louis, were guests of the Adams County (Illinois) Medical Society at Quincy at a dinner meeting on February 11. Dr. Caulk presented an address on "Pyelitis in Children" and Dr. Newell discussed "The Cancer Problem in Gynecology."

Drs. Robert Crossen and John E. Hobbs, St. Louis, will be the guests of the 7th Councilor District at Hannibal on April 5 and present a program on cancer under the auspices of the Committee on Cancer. Dr. Crossen will address a lay meeting in the afternoon on "What Every One Should Know About Cancer." In the evening a scientific program will be presented. Dr. Crossen will speak on "The Diagnosis, Prevention and Treatment of Cancer of the Uterus" and Dr. Hobbs will discuss "The Pathology of Cancer of the Uterus."

A series of four clinical demonstrations and lectures on "The Diagnosis and Treatment of Syphilis" were presented during March by the St. Louis Medical Society and the Missouri Social Hygiene Association in collaboration with the venereal disease section of the St. Louis Health Department. The sessions which were open to all physicians were held each Thursday at 12 o'clock.

Dr. Edwin L. Sheahan, Clayton, was appointed health commissioner of St. Louis County by the County Court February 25 to succeed Dr. L. C. Obrock. Dr. Sheahan has been superintendent of the County Hospital, Clayton, since January 1. He will continue to hold that position. This is a step in the proposed reorganization and consolidation of public health services in St. Louis County.

The Mental Hygiene Society of St. Louis held a mental health conference March 26, 27 and 28. On the first day the annual meeting of the society was held as a luncheon meeting at the Coronado Hotel. Dr. C. M. Hincks, New York City, general director of the American and Canadian National Committee for Mental Hygiene, addressed the session. Other guest speakers at the conference were Dr. John J. B. Morgan, Chicago, professor of psychology at Northwestern University, and Clifford Shaw, Chicago, research sociologist for the behavior research fund at the Institute for Juvenile Research, Chicago.

The annual meeting of the American Association on Mental Deficiency will be held at the Palmer House, Chicago, April 25, 26 and 27. The Thursday and Friday sessions will be devoted to studies on mongolism, birth injury as an etiological factor in mental deficiency, mental disorders in mental deficiency, the problem of sterilization, defective delinquency and its relation to penal institutions, community supervision of the paroled mental defective and newer methods in institutional training for community life. The last day will be devoted to the sociological, psychological and the special educational aspects of mental deficiency.

Four members of the class of '81 of the St. Louis Medical College celebrated the fifty-fourth anniversary of their graduation on March 3 at the home of one of the mem-

bers, Dr. Willis Hall, St. Louis. Five members of the class, which originally numbered forty-three, survive. Those attending the anniversary meeting were Dr. Hall, Dr. James A. Dickson, Dr. Amand Ravold and Dr. Max C. Starkloff, all of St. Louis. Dr. William A. James, Chester, Illinois, the fifth member, was unable to attend. Two members of the class, Dr. Harvey G. Mudd and Dr. Henry J. Harnisch, St. Louis, have died during the last year. This was the fifth reunion the class has held, the other meetings being in 1906, 1911, 1921 and 1931.

The following resolution on the corporate practice of medicine was adopted by the St. Louis Medical Society on February 26:

WHEREAS, Section 9111, Revised Statutes of Missouri, defines the practice of medicine, surgery and midwifery, and

WHEREAS, There is no authority anywhere in the laws in the State of Missouri granting to any corporation through employes the privilege to engage in the practice of medicine, surgery and midwifery, thereby engaging in the corporate practice of medicine, and

WHEREAS, Many industrial, commercial, social, fraternal and other corporations and groups are now engaged in the corporate practice of medicine, surgery and midwifery contrary to the laws of the State of Missouri and the Code of Ethics of organized medicine, be it therefore

Resolved, That the St. Louis Medical Society grant the necessary funds from the treasury of the Society not to exceed \$1000 for legal expenses and employment of professional counsel necessary to eradicate the illegal corporate practice of medicine in the City of St. Louis and the State of Missouri; be it further

Resolved, That the president appoint a committee of three to be known as the medico-legal committee who shall make monthly reports of progress to the Society.

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Merck & Co., Inc.

Tablets Cebione—Merck, 0:05 Gm.

Parke, Davis & Co.

Capsules Silvol, 6 grains

Kapseals Ortol Sodium with Amidopyrine
Pfanstiehl Chemical Co.

Aminoacetic Acid—Pfanstiehl

United States Standard Products Co.

Bermuda Grass Pollen Extract—U. S. S. P. Co.; Box Elder Pollen Extract—U. S. S. P. Co.; Burweed Pollen Extract—U. S. S. P. Co.; Careless Weed Pollen Extract—U. S. S. P. Co.; Cocklebur Pollen Extract—U. S. S. P. Co.; Corn Pollen Extract—U. S. S. P. Co.; Cosmos Pollen Extract—U. S. S. P. Co.; Cottonwood

(Poplar) Pollen Extract—U. S. S. P. Co.; Dandelion Pollen Extract—U. S. S. P. Co.; Elm Pollen Extract—U. S. S. P. Co.; English Plantain Pollen Extract—U. S. S. P. Co.; Goldenrod Pollen Extract—U. S. S. P. Co.; Grasses Combined Pollen Extract—U. S. S. P. Co. (Bermuda Grass, June Grass, Orchard Grass, Red Top, Sweet Vernal Grass and Timothy in equal parts); Johnson Grass Pollen Extract—U. S. S. P. Co.; June Grass Pollen Extract—U. S. S. P. Co.; Lambs Quarters Pollen Extract—U. S. S. P. Co.; Maple Pollen Extract—U. S. S. P. Co.; Marsh Elder Pollen Extract—U. S. S. P. Co.; Mugwort (Wormwood) Pollen Extract—U. S. S. P. Co.; Orchard Grass Pollen Extract—U. S. S. P. Co.; Pigweed (Redroot) Pollen Extract—U. S. S. P. Co.; Ragweed (Common) Pollen Extract—U. S. S. P. Co.; Ragweed (False) Pollen Extract—U. S. S. P. Co.; Ragweed (Giant) Pollen Extract—U. S. S. P. Co.; Ragweed (Western) Pollen Extract—U. S. S. P. Co.; Ragweed Combined Pollen Extract—U. S. S. P. Co. (Giant and Common Ragweed, in equal parts); Red Oak Pollen Extract—U. S. S. P. Co.; Red Top Pollen Extract—U. S. S. P. Co.; Russian Thistle Pollen Extract—U. S. S. P. Co.; Rye Grass Pollen Extract—U. S. S. P. Co.; Sweet Vernal Grass Pollen Extract—U. S. S. P. Co.; Timothy Pollen Extract—U. S. S. P. Co.; White Ash Pollen Extract—U. S. S. P. Co.; White Oak Pollen Extract—U. S. S. P. Co.

The following product has been accepted for inclusion in the List of Articles and Brands Accepted by the Council But Not Described in N. N. R. (New and Nonofficial Remedies, 1934, p. 443):

Sharp & Dohme

Ampules Sodium Cacodylate—Mulford,
7½ grains, 5cc.

The following speakers responded to invitations from the Postgraduate Committee of the State Association to deliver addresses at recent meetings of the component county medical societies:

Drs. E. Kip Robinson and L. A. Scarpellino, Kansas City, were the guests of the Caldwell-Livingston County Medical Society at Chillicothe, January 29. Dr. Robinson spoke on "Cancer of the Cervix" and Dr. Scarpellino on "Diagnosis and Treatment of Diphtheria."

The South Central Counties Medical So-

ciety had as its guests at Willow Springs on January 31, Drs. Dan G. Stine, R. S. Battersby and C. C. Pflaum, Columbia, who presented a symposium on "Pneumonia" as follows: "The Diagnosis and Treatment of Pneumonia," Dr. Stine; "Pneumonia in the Child," Dr. Battersby, and "Types, Etiology and Complications of Pneumonia," Dr. Pflaum.

On February 6 Drs. Harold P. Kuhn and E. H. Skinner, Kansas City, were the guests of the Nodaway County Medical Society at Maryville. Dr. Kuhn spoke on "The Management of the Complications of Gallbladder Surgery" and Dr. Skinner spoke on "Prevention and Cure of Cancer."

Dr. A. W. McAlester, Jr., Kansas City, was a guest of the Woman's Auxiliary to the Livingston County Medical Society at Chillicothe on February 28 and spoke on "The Prevention of Eye Diseases" at an open meeting.

Drs. John Green and Otto Krebs, St. Louis, were guests of the Marion-Ralls County Medical Society at Hannibal on March 1. Dr. Green presented an address on "What the Physician Can Do to Conserve Vision and Prevent Blindness." Dr. Krebs spoke on "Some Difficulties Encountered in Comparatively Normal Labor."

The Nodaway County Medical Society had as its guests at Maryville on March 6 Drs. R. B. Schutz and D. E. Curry, Kansas City. Dr. Schutz spoke on "An Evaluation of Methods of Analgesia in Obstetrics" and Dr. Curry spoke on "The Use of Larostidin in the Treatment of Peptic Ulcer."

OBITUARY

JULIUS LINGENFELDER, M.D.

Dr. Julius Lingenfelder, Hermann, a graduate of the Ludwig Maximilians-Universitat Medizinisch Fakultat, Munchen, Bavaria, 1889, died at his farm home near Gasconade, November 5, 1934, aged 70 years.

Dr. Lingenfelder was born in Edenkoben, Germany. He received his preliminary education in Edenkoben and Landau, Germany.

Three years after completing his medical studies he began his practice in St. Louis. He did not remain there long but went further west and practiced in several places through the West and Central States, including Spokane, Washington; Westpoint, Grand Island, Norfolk and Beemer, Nebraska, and Hermann, Missouri. He practiced in Hermann for a number of years until three years ago when he moved to his farm near Gasconade.

Dr. Lingenfelder was a member of the Gasconade-Maries-Osage County Medical Society and was its president in 1929. He was coroner of Gasconade County for several years.

Dr. Lingenfelder is survived by his widow, Mrs.

Anna Sherpe Lingenfelder, five children, two grandchildren and two brothers.

FOSTER W. BURKE, M.D.

Dr. Foster W. Burke, Laclede, a graduate of Marion Sims College, 1897, died of heart disease at his home on January 3, 1935, aged 59 years.

Dr. Burke was born at Lathrop, Missouri, and spent his early life there and in Saline, Kansas. In 1881 he moved with his family to Laclede. He was graduated from Brookfield College and taught school for a year before he began his medical studies. After completing his medical work he began his practice with his father, the late Dr. J. L. Burke, in Laclede.

Dr. Burke was a member of the Linn County Medical Society and had served as its president. He had acted as treasurer of the Society most of the time since 1920.

During his early years of practice he served as county coroner and was a member of the State Board of Health during one term. In 1912 he was a member of the republican state and congressional committees and was secretary of the latter for several years. He was a member of the United States Pension Board for Linn County and served as secretary of the board for some time. He had been president of the Laclede Board of Education and was a city alderman.

The death of Dr. Burke ends an unbroken line of one hundred twenty-three years of medical service in the Burke family. His grandfather, Dr. B. J. Burke, began practice in 1849 and was followed by his son, Dr. J. L. Burke, father of Dr. Foster W. Burke. This service is to be taken up again by his son, Foster W. Burke, Jr., who is a student in Washington University School of Medicine.

Dr. Burke is survived by his widow, Mrs. Georgia Maxey Burke, two sons and a daughter.

JAMES P. DUNIGAN, M.D.

Dr. J. P. Dunigan, Sullivan, a graduate of the Missouri Medical College, St. Louis, in 1885, died at his home, December 2, 1934, aged 75 years.

Dr. Dunigan was born on a farm near Byrnesville, Missouri. He resided there until he grew to manhood. He spent a year in California then entered a business college in St. Louis preceding his medical education.

He began his practice in Sullivan and practiced there continuously until about a year ago when his health began to fail.

Of Dr. Dunigan, the *Tri-County Democrat*, Sullivan, said:

Dr. Dunigan was quiet, unassuming and a kindly helper to all; he was honest and truthful, and a man whose integrity was never questioned. After his many years of active public service it is needless to say that he will be sadly missed in this city and throughout this section of the state. The wonderful acts that he has performed in his lifetime are reflected by the hundreds of friends, not only from his own community but throughout the state, who came to pay their last respects to one so worthy and view the body as it lay in state in its beautiful surroundings amid mountains of flowers in the Dunigan home.

He is survived by his widow, Mrs. Maude Drace Dunigan, and two daughters.

Gershom J. Thompson and Edward N. Cook, Rochester, Minn. (*Journal A. M. A.*, March 9, 1935), point out that chronic prostatitis often persists because of infected pockets or diverticula that drain only through a small prostatic duct. Treatment by ordinary methods results only in temporary relief of symptoms. Surgical treatment of these regions by the transurethral route will ensure adequate drainage and subsequent improvement in a large percentage of cases.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1935

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Ste. Genevieve County Medical Society,
December 12, 1934.

Chariton County Medical Society, Janu-
ary 3, 1935.

Perry County Medical Society, January 4,
1935.

Moniteau County Medical Society, Janu-
ary 10, 1935.

Camden County Medical Society, Febru-
ary 26, 1935.

Schuyler County Medical Society, March
18, 1935.

MISSOURI STATE MEDICAL ASSOCIA- TION—78TH ANNUAL SESSION

Excelsior Springs, May 6, 7, 8, 9, 1935

ANNOUNCEMENT OF PAPERS ACCEPTED FOR THE SCIENTIFIC PROGRAM

Bailey, Fred W., St. Louis: Early Diagnosis in Ob-
scure Abdominal Diseases.

Bohan, Peter T., Kansas City: Quinidine Sulphate:
Its Actions and Uses.

Broun, G. O., St. Louis: Encephalitis.

Burford, C. E., St. Louis: Tuberculosis of the
Genito-Urinary Tract.

Carroll, Grayson, St. Louis: The Problem of Pain-
less Urological Instrumentation.

Caulk, John R., St. Louis: Chronic Pyelonephritis
in Infants and Children.

Cole, Warren, St. Louis: Partial Hepatectomy for
Carcinoma: Report of a Case.

Connell, Evan S., Kansas City: The Application of
Ovarian Therapy to Nose and Throat Surgery.

Coughlin, W. T., and McCaughan, J. M., St. Louis:
Tumors in the Head of the Pancreas: The Value of
Cholecystenterostomy.

Coulter, J. S., Chicago: Physical Therapy in Chronic
Arthritis.

Dauksys, Joseph, Excelsior Springs: Schuller-
Christian Disease.

Dean, L. W., St. Louis: Treatment of the Diseases
of the Nasal Sinuses in Infants and Young Children.

Dennie, Charles C., Kansas City: Heat in the Treat-
ment of Somatic Syphilis.

Dickson, Frank D., Kansas City: Fractures of the
Neck of the Femur.

Gallagher, Wm. J., St. Louis: Uretero-Arachnoid
Anastomosis for Hydrocephalus.

Gilkey, Harry M., Kansas City: Heart Disease in
Children.

Hamilton, Burford G., Kansas City: Prelabor
Period.

Hammond, John, St. Louis: Pneumothorax Treat-
ment of Lobar Pneumonia: Presentation of Cases.

Hayden, Austin A., Chicago: American Medical As-
sociation, Motion Picture.

Heller, Edward P., Kansas City: Medical Eco-
nomics.

Hill, Roland, St. Louis: Unusual Case of Foreign
Body in the Abdomen.

Hoffmann, R. Lee, Kansas City: Prostatic Enuclea-
tions Compared to Transurethral Resections.

Hunt, Claude J., Kansas City: Diagnosis and Sur-
gical Management of Cancer of the Stomach.

Johnson, Emsley T., Kansas City: Carbontetra-
chloride Poisoning: Presenting Experimental Data
and Two Clinical Cases With Necropsy Findings.

Key, J. Albert, St. Louis: Diagnosis and Treatment
of Acute and Chronic Osteomyelitis.

Kinsella, Ralph, St. Louis: Treatment of Chronic
Arthritis.

Knappenberger, George E., Kansas City: Pernicious
Anemia.

Kotkis, A. J., St. Louis: The Role of Physical Ther-
apy in Medicine Today.

Lamb, H. D., St. Louis: Hereditary Blindness in
Missouri.

Lapp, T. S., Fulton: An Institutional Outbreak of
Shiga Dysentery and Its Control.

Leland, R. G., Chicago: Medical Care for the
American People.

Lowsley, Oswald S., New York: New Developments
in Renal Surgery: With Motion Picture Demonstra-
tion.

Miller, E. Lee, Kansas City: Address of President-
Elect: The Doctor of Tomorrow.

Neff, Frank C., Kansas City: The Changing Prac-
tices in Infant Feeding.

Nienstedt, E. J., Blodgett: Title to be announced.

O'Brien, Cecil S., Iowa City: Title to be announced.

Rainey, Warren R., St. Louis: Complications De-
veloping After Operation for Rectal Fistula.

Robinson, G. Wilse, Kansas City: Physical Factors
in the Development of Psychoses.

Rose, D. K., St. Louis: Urinary Incontinence.

Ryland, C. T., Lexington: Address of the President.

Schwarz, Otto, and Paddock, Richard, St. Louis:
Cesarean Section: Discussion of Its Indications and
Incidence in the St. Louis Maternity Hospital.

Schwitalla, Father Alphonse M., St. Louis: Medical
Economics.

Sherwin, Charles F., St. Louis: Principles of Safety
in Thyroid Surgery.

Snider, Sam, Kansas City: Diagnosis and Nonsur-
gical Treatment of Bronchiectasis.

Stewart, John W., St. Louis: Complications of Ap-
pendicitis: Report of Cases.

Thiele, George H., Kansas City: Clinical Manifesta-
tions of Anorectal Diseases.

Virden, C. Edgar, Kansas City: Radiation Therapy
in the Treatment of Disease.

Werner, August A., St. Louis: Adrenal Hypercorti-
cal and Hypermedullary Syndrome.

Presentation of Clinical Material by Clay County
Medical Society.

Papers on "Diseases of the Eye, Ear, Nose and
Throat" will be presented on the afternoon of May 9
under the auspices of the Kansas City Society of Oph-
thalmology and Otolaryngology, the Ophthalmic Sec-
tion of the St. Louis Medical Society and the St. Louis
Ophthalmic Society. The titles of papers will appear
in the May issue of THE JOURNAL.

ADAIR COUNTY MEDICAL SOCIETY

The Adair County Medical Society met February 7
at the Grim Smith Hospital, Kirksville. The meet-
ing was called to order at 8 o'clock by the president,
Dr. George Grim, Kirksville.

A motion was made by Dr. Spencer Freeman that Dr. J. W. Martin, Kirksville, because of failing health, be placed on the honor roll with all the rights and privileges of an active member without the payment of dues. Seconded by Dr. J. S. Gashwiler, Novinger, and carried.

A motion was made and seconded that the bill sponsored by the St. Louis County Medical Society be urged for passage and that it be taken up with the representative, providing it meets with the approval of the State Medical Association. The board of censors reported favorably upon the bill.

Dr. J. W. Creed was elected to membership.

Dr. E. Sanborn Smith, Kirksville, had been called to Kansas City by the State Board of Health and was unable to present his scheduled talk on "Scarlet Fever."

J. S. GASHWILER, M.D., Secretary.

BUCHANAN COUNTY MEDICAL SOCIETY

The Buchanan County Medical Society was called to order in the Missouri Methodist Hospital by the president, Dr. E. F. Cook, at 8 p. m., February 6, with forty-three present.

The president introduced Dr. T. L. Howden, chairman of the program committee, who in turn, introduced the speaker, Bishop Le Blond, who spoke on "Medicine in Relation to the Relief Program." In essence he warned the physicians that unless they busied themselves to prevent it the condition of state medicine would become a fact in this country within the next few years. At the conclusion of his address a vote of thanks was extended to the speaker for his message.

Dr. C. H. Wallace, Sr., reported that nothing further can be done about the Jacob Geiger library until action by the curators of the estate.

The amendment to the by-laws to prevent repeated introduction of the same change within one year was passed.

The amendment to change the manner of election of officers was defeated.

H. B. 174 was discussed after a reading of its wording and a motion was passed instructing the secretary to write a letter of protest to each of the representatives in the House and to the senator from the district urging their vigorous repudiation of the bill.

Dr. Orr Mullinax, new superintendent of State Hospital No. 2, was introduced and gave a short talk in which he invited the Society to meet at the hospital. He was assured that the invitation would be accepted.

A letter concerning the Safety Council from Walter D. Ladd was read and the motion was passed that the president appoint a member of the Society to be a member of this organization.

A letter from Mrs. Frieda C. Craig was read announcing the coming of Dr. W. W. Bauer, Chicago, who will be the speaker for the Auxiliary to the Buchanan County Medical Society on February 13 at a public relations' meeting. Dr. H. De Lamater moved that the program committee arrange a luncheon in honor of Dr. Bauer and the motion carried. It was suggested that Dr. Bauer be asked to give a brief talk at the luncheon.

Dr. Gustav A. Lau's acknowledgment of the floral spray sent by the Society at the death of Mrs. Lau was read.

A resolution of the Ensworth Hospital and Medical Educational Fund concerning Dr. Jacob Geiger was read.

E. F. Cook, M.D., Secretary.

CAPE GIRARDEAU COUNTY MEDICAL SOCIETY

The Cape Girardeau County Medical Society met in the Chamber of Commerce rooms at Cape Girardeau, February 11, with Dr. D. I. L. Seabaugh, Jackson, president, in the chair.

Those present were Drs. D. I. L. Seabaugh, B. W. Hays and D. G. Seibert, Jackson; Paul Nussbaum, H. V. Ashley, J. H. Cochran, O. L. Seabaugh, N. F. Chostner and C. A. W. Zimmermann, Cape Girardeau. Guests were Drs. E. J. Nienstedt, Blodgett, and W. O. Finney and G. A. Sample, Chaffee.

The president presented a message from Dr. Neil S. Moore, president of the St. Louis Medical Society, as follows: "The St. Louis Medical Society has adopted a resolution requesting the Missouri State Medical Association to reintroduce a medical lien law in the 58th General Assembly. We would like to suggest similar action and support by your Society." Dr. J. H. Cochran moved that the Cape Girardeau County Medical Society concur in the action of the St. Louis Medical Society. Dr. D. G. Seibert seconded the motion which carried.

Dr. H. V. Ashley read a paper on "Cesarean Section" and Dr. D. G. Seibert gave a paper on "Eclampsia." Both papers were practical and instructive and elicited a generous discussion.

Dr. W. O. Finney, Chaffee, filed a copy of the fee bill adopted by Scott County with the secretary.

C. A. W. ZIMMERMANN, M.D., Secretary.

COOPER COUNTY MEDICAL SOCIETY

The Cooper County Medical Society met at St. Joseph's Hospital, Boonville, February 22.

Dr. G. Warren Winn, Boonville, was voted to membership.

The following officers were elected: President, Dr. J. O. Boley, Pilot Grove; vice president, Dr. Charles Sandy, Pilot Grove; secretary-treasurer, Dr. J. C. Tinch, Boonville; delegate, Dr. W. E. Stone, Boonville, and alternate, Dr. C. H. Van Ravenswaay, Boonville.

T. C. BECKETT, M.D., Secretary.

GREENE COUNTY MEDICAL SOCIETY

The Greene County Medical Society met in the Public Library at Springfield, January 18, Dr. G. D. Calloway, Springfield, presiding.

A short report was made for the program committee by Dr. W. S. Sewell, Springfield, and a report for the public health and legislation committee by Dr. J. W. Love, Springfield.

A communication was read from Dr. W. E. Handley, Springfield, resigning as treasurer after sixteen years of service. A motion was made and passed to accept Dr. Handley's resignation and to thank him for his past service. The rules were suspended and Dr. J. F. Leslie was elected treasurer by acclamation.

A telegram from the St. Louis Medical Society soliciting aid for a medical lien law in the Legislature was read and referred to the committee on public health.

Applications for membership were received from Dr. John Williams and Dr. L. M. Rigney. These were referred to the board of censors.

The new president, Dr. Wallis Smith, was introduced and gave an interesting paper on the program for 1935.

The following committees were appointed: Public health and legislation: Drs. J. W. Love, C. E. Feller

and C. B. Elkins. Program: Drs. W. S. Sewell, E. T. H'Doubler and C. Souter Smith. Necrology: Drs. W. P. Patterson and W. R. Beatie. Social: Drs. G. Hogg, J. E. Rayle and F. R. Farthing.

Dr. G. D. Calloway presented a most interesting talk on "Diagnosis and Treatment of Tularemia With a New Serum With Report of Four Cases." The discussion was opened by Dr. J. W. Love who gave the history of the disease with reference to the oculo-glandular type.

JOHN W. WILLIAMS, JR., M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society met February 12 with twenty-seven members present.

Dr. L. C. Chenoweth, Joplin, reported on a proposed medical lien law and moved that the Society recommend to the representatives that the law be passed. The motion carried.

Dr. W. M. Kinney, Joplin, reported a case of a woman with mitral stenosis who was made markedly neurotic by the statement from a physician that she might drop dead any moment. The question of telling patients the absolute truth concerning their condition was discussed by Drs. S. A. Grantham, Sr., A. B. Clark, O. T. Blanke, J. W. Barson and R. L. Neff, Joplin, and L. B. Clinton, Carthage.

Dr. A. M. Gregg, Joplin, read a paper on "Retroposition of the Uterus." This was discussed by Drs. B. E. DeTar, S. A. Grantham, Sr., S. A. Grantham, Jr., R. L. Neff, J. L. Sims, A. B. Clark, J. W. Barson, L. C. Chenoweth, J. A. Chenoweth, Joplin, and E. J. McIntire and L. B. Clinton, Carthage.

Meeting of February 19

The Society met February 19 with twenty-one members and one visitor present.

A card of appreciation from the family of Dr. Tom DeArman, Jr., was read.

Dr. J. B. Stokes, Mount Vernon, presented a paper on "The Value of the Erythrocyte Sedimentation Rate in General Practice." This was discussed by Drs. J. E. Douglass, Webb City, S. A. Grantham, Jr., W. M. Kinney and J. W. Barson, Joplin.

A letter from the prosecuting attorney, Mr. C. R. Warden, was read regarding the man who is purported to be practicing without a license at Jasper, stating that he had the case under investigation but, as yet, has had nothing definite on it but would keep the Society informed as to the developments.

Meeting of February 26

The Society convened February 26 with nine members present.

A letter from the prosecuting attorney regarding the man at Jasper was read stating that he had written the man that he must present his certificate to the Society or discontinue the practice of medicine in this state.

Correspondence from Secretary E. J. Goodwin relative the proposed legislation now pending in the State Assembly was presented. Motion was made by Dr. R. M. James, Joplin, that each physician write to the representatives and senators of the district opposing these three proposed bills, these letters to be written by the secretary and presented to each physician for signature and mailing. Seconded by Dr. B. E. DeTar, Joplin, and carried.

Dr. R. M. James, Joplin, presented correspondence from Secretary Goodwin regarding proposed legislation with regard to socialized medicine. It was resolved that the Society oppose this legislation and adopt resolutions passed by the American Medical Association and that the Society write the senators and representatives their action regarding this legislation, also

copies of the resolution be mailed to the State Association and the American Medical Association.

Dr. R. M. James moved that a letter from the Connor Hotel regarding the invitation that the Society meet at the Connor Hotel in the future be received and filed.

Dr. W. S. Loveland, Joplin, reported a case of a man injured while at work, later dying while anesthetic was being administered. Autopsy revealed gangrenous areas in the intestines and retroperitoneal hemorrhage.

JOHN W. HARDY, M.D., Secretary.

RAY COUNTY MEDICAL SOCIETY

The Ray County Medical Society met February 19 in Richmond.

Dr. H. M. Griffith, Richmond, gave a paper on "Cerebrospinal Meningitis." Discussion was entered into by each member present.

Those present were Drs. T. F. Cook, L. D. Greene, H. M. Griffith and G. W. Gaines, Richmond, and O. S. Pate, Orrick.

G. W. GAINES, M.D., Secretary.

ST. FRANCOIS-IRON-MADISON-WASHINGTON-REYNOLDS COUNTY MEDICAL SOCIETY

The St. Francois-Iron-Madison-Washington-Reynolds County Medical Society met at Farmington January 17. The meeting was called to order by the president, Dr. D. E. Smith, Bonne Terre, and immediately proceeded to the scientific portion of the program.

Dr. E. V. Mastin, St. Louis, spoke on "Surgical Considerations of Diseases of the Thyroid," illustrating his talk with numerous slides. This interesting paper provoked considerable comment from the members present.

A resolutions committee consisting of Drs. R. Appleberry and G. L. Watkins, Farmington, was appointed to draw up resolutions of the Society anent Dr. O. A. Smith's death.

H. M. ROEBBER, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

13th Annual Meeting, Atlantic City, 1935

President, Mrs. Robert W. Tomlinson, Wilmington, Delaware.

President-Elect, Mrs. Rogers N. Herbert, Nashville, Tennessee.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

11th Annual Meeting, Excelsior Springs, May 7, 8, 1935

President, Mrs. William H. Goodson, Liberty.

President-Elect, Mrs. M. Pinson Neal, Columbia.

Adviser, Dr. J. F. Harrison, Mexico.

Excelsior Springs, May 7, 8, 1935—

Preliminary Program

Tuesday, May 7, 1935

9:00 a. m. Registration.

10:00 a. m. Preconvention Board Meeting.

12:30 p. m. Luncheon at Snapp Hotel, Mrs. David S. Long, Harrisonville, presiding.
3:00 p. m. Tea at home of Dr. and Mrs. J. F. Grace.
8:00 p. m. Joint meeting with the Missouri State Medical Association at the Elms Hotel, Drs. R. G. Leland and Austin A. Hayden, Chicago, speakers.

Wednesday, May 8, 1935

9:30 a. m. Business Session.
1:00 p. m. Luncheon at the Country Club.
3:00 p. m. Postconvention Board Meeting, Mrs. M. Pinson Neal, Columbia, presiding, followed by drive and tea at the Veterans' Hospital.
7:00 p. m. Dinner at Snapp Hotel, Dr. W. W. Bauer, Chicago, speaking on "The Doctors' Contribution to Progress"; William Jewell players presenting one act play "Auf Wiedersehen."

Notes

The Buchanan County Auxiliary reports an outstanding public relations day program on February 13. Dr. W. W. Bauer, Chicago, Director of the Bureau of Health and Public Instruction of the American Medical Association, was the speaker for this occasion. The day's program, prepared by Mrs. A. B. McGlothlan, took Dr. Bauer in the morning to the St. Joseph Central High School where he spoke for forty minutes to a thoroughly interested group of twelve hundred students on "Centuries of Medical Progress."
In the afternoon following an auxiliary tea Dr. Bauer spoke at the Y. W. C. A. to a large audience of representatives of organizations interested in the promotion of health and health education in the community. Dr. Bauer's subject was "Our First Big Job in Health Education." He listed the sources which are prepared to give out authentic information as the medical profession, the dental profession, teachers in universities, extension departments, health columns in newspapers which are based upon authentic medical information, radio programs which are sponsored by medical organizations and the several public health agencies. The public is oversold on the subject, in the speaker's estimation, and the problem now to be faced is to educate the general public to look to the source of the information.
Dr. Bauer was interesting and informing concerning sources of pseudo-health education, not authentic but rather misleading, dangerous and expensive. He showed also that unfortunately health education and health agencies too often suffered from political interference. Here he thought was one of the places where the women of a community could well insist on the elimination of political influence.

MISCELLANY

BUDGET FOR 1935

| | |
|---|-------------|
| Salaries (office and Journal) | \$10,600.00 |
| JOURNAL | 6,600.00 |
| Legislation | 2,500.00 |
| Defense | 1,000.00 |
| Postage | 400.00 |
| Postgraduate Work | 1,000.00 |
| Printing and stationery | 600.00 |
| Traveling expenses, Secretary and Assistant | |
| Secretary | 1,100.00 |
| Telephone and telegraph | 500.00 |
| Rent of office and light | 1,300.00 |
| Meetings (Annual Session, Council, Executive Committee) | 1,500.00 |
| General expense and miscellaneous | 600.00 |
| Total | \$27,700.00 |

FINANCIAL STATEMENT FOR 1934

ROBERT A. LENNERTSON
CERTIFIED PUBLIC ACCOUNTANT
Saint Louis

March 5, 1935.

Missouri State Medical Association,
St. Louis, Mo.
Gentlemen:

Pursuant to instructions received, I have examined the books and accounts of the Missouri State Medical Association for the year 1934, and have prepared therefrom the following attached statements:

- Exhibit A—Balance Sheet as of December 31, 1934.
- " B—Statement of Income and Expenses for the year 1934.
- " C—Summary of Cash Receipts and Disbursements by funds for the year 1934.
- " D—Dues Receivable and Membership by Counties December 31, 1934.

Scope of Examination

Asset and liability accounts at December 31, 1934, were verified with the records of the Association and comments thereon appear later in the report.

Recorded cash transactions for the year 1934 were reviewed. The cash receipts, consisting of members' dues, advertising income, JOURNAL subscriptions from nonmembers and rent of office space, were traced in total into the bank account as deposits and the disbursements were verified with paid cheques and purchase invoices. Space in THE JOURNAL not occupied by paid advertisements is filled by publishing reciprocal and complimentary advertisements.

Operations

The activities of the Association for the year 1934 resulted in a net profit on operations in the sum of \$3,410.75.

Exhibit B presents the details of the operating accounts which are summarized hereunder:

| Particulars | General Activities | JOURNAL Publication | Together |
|-------------|--------------------|---------------------|-------------|
| Income | \$19,091.00 | \$ 9,346.65 | \$28,437.65 |
| Expenses | 14,662.85 | 10,364.05 | 25,026.90 |

Net income or deficit \$ 4,428.15 \$ 1,017.40 \$ 3,410.75

THE JOURNAL has been charged with 36.88 per cent of the administrative salaries and 27.00 per cent of the clerical salaries in Exhibit B.

Balance Sheet

The financial position of the Missouri State Medical Association at December 31, 1934, is disclosed by the balance sheet, Exhibit A. Comments on the accounts included therein follow:

Cash in the sum of \$10,226.61 consists of
Cash in transit deposited January 4, 1935.....\$ 104.00
Mercantile Commerce Bank and Trust Co..... 10,000.98
Secretary's account 111.63
Petty cash fund 10.00

Total.....\$10,226.61

The cash in transit was traced into the bank account as a deposit on January 4, 1935, and the cash in the Mercantile Commerce Bank and Trust Company was verified with a certificate obtained from the depository. The Secretary's account represents the unexpended portion of funds held by him for the payment of sundry small bills. The petty cash fund in the sum of \$10.00 was verified by actual count.

Advertisers were indebted to the Association in the sum of \$621.25 as disclosed by the ledger accounts. A summary of the balances as to age follows:

| | |
|------------------------|----------|
| December, 1934 | \$400.25 |
| November, 1934 | 38.75 |
| October, 1934 | 23.25 |
| Prior to October, 1934 | 159.00 |

Total.....\$621.25

The management is of the opinion that the loss, if any, on these accounts will be small in amount.

Members individual ledger cards were examined as of December 31, 1934, and the details of the unpaid dues and the membership by counties will be found in Exhibit D. Dues receivable in the sum of \$6,241.00 are offset by a reserve account in a like amount as no value can be given to members' delinquent dues. The change in the membership account for the year 1934 is shown by the following summary:

| | |
|-----------------------------|-------|
| Membership, January 1, 1934 | 3,109 |
| New | 153 |
| Reinstated | 59 |

Total.....3,321

Deductions

| | | |
|-------------------|----|-----|
| Dropped | 87 | |
| Died | 72 | |
| Transferred | 36 | 195 |

Membership, December 31, 1934.....3,126

During the period under review, additions to the furniture and fixtures' account amounted to \$75.50 and depreciation in the sum of \$150.00 was deducted leaving a net balance in this account of \$810.00.

It is estimated that at the close of the year the printers of THE JOURNAL had paper stock on hand with a value of \$450.00. A payment of \$200.00 was made to the Associated Industries of Missouri in December, 1934, for legislative service to be furnished during the year 1935 and this amount is therefore carried as a prepaid expense on the balance sheet.

The accounts payable consist of sundry bills for supplies and expense in the sum of \$66.03 and advance payments by advertisers in the sum of \$29.50.

The Association is contingently liable in the amount of \$5,100.00 on seventeen malpractice suits filed against its members. During the year 1934 the sum of \$500.00 was spent by the Association for the defense of members.

General

Fire insurance in the sum of \$1,000.00 is carried on the furniture, books and supplies. The Secretary of the Association is bonded in the amount of \$1,000.00, but none of the other officers or employees is under bond. In this connection it is noted that the By-Laws on page 9, Chapter 5, Section 3, provides that "the Treasurer shall give bond in the sum of \$20,000.00." It is suggested that the By-Laws be changed and the amount of the bond to be required of any officer or employee be fixed by the Council.

The books and records examined were found to have been maintained satisfactorily during the year.

Should you desire any further information on this report or the attached statements, I shall be pleased to furnish it upon request.

Yours very truly,

R. A. LENNERTSON, Certified Public Accountant.

EXHIBIT A.

MISSOURI STATE MEDICAL ASSOCIATION—
BALANCE SHEET AS OF DECEMBER 31, 1934

Assets

| | | |
|--|------------|-------------|
| CASH: | | |
| General Fund | \$3,827.89 | |
| Legislative Fund | 2,732.48 | |
| Sinking Fund | 2,069.00 | |
| Defense Fund | 1,597.24 | |
| | | \$10,226.61 |
| Accounts Receivable—Advertisers | 621.25 | |
| Dues Receivable—Exhibit D. | 6,241.00 | |
| Furniture and Fixtures..... | 810.00 | |
| Paper Stock for THE JOURNAL..... | 450.00 | |
| Prepaid Expense—Legislative Service for 1935 | 200.00 | |
| | | \$18,548.86 |
| Accounts Payable: | | |
| Supplies and Expense.....\$ 66.03 | | |
| Advance Payments by Advertisers..... 29.50 | | |
| | | \$ 95.53 |
| Contingent Liability: | | |
| To Members on 17 Malpractice Suits...\$5,100.00 | | |
| Reserve for Uncollected Dues..... | 6,241.00 | |
| Fund Balances: | | |
| General Fund | \$3,827.89 | |
| Legislative Fund | 2,732.48 | |
| Sinking Fund | 2,069.00 | |
| Defense Fund | 1,597.24 | |
| | | 10,226.61 |
| SURPLUS | 1,985.72 | |
| | | \$18,548.86 |

EXHIBIT B.

MISSOURI STATE MEDICAL ASSOCIATION STATE-
MENT OF INCOME AND EXPENSES FOR THE
YEAR 1934

| Particulars | General Activities | JOURNAL Publication | Together |
|--|--------------------|---------------------|-------------|
| INCOME: | | | |
| Dues received (after deducting \$1.00 per member for JOURNAL)..... | \$18,251.00 | \$..... | \$18,251.00 |

| Particulars | General Activities | JOURNAL Publication | Together |
|--|--------------------|---------------------|-------------|
| Rentals—Annual Session exhibit space | 300.00 | ..... | 300.00 |
| Rent from subtenant (office space) | 540.00 | ..... | 540.00 |
| Subscriptions to JOURNAL—members | | 2,672.00 | 2,672.00 |
| Subscriptions to JOURNAL—nonmembers | | 87.25 | 87.25 |
| Advertising space | | 6,587.40 | 6,587.40 |
| Total income | \$19,091.00 | \$ 9,346.65 | \$28,437.65 |

EXPENSES:

| | | | |
|--|-------------|-------------|-------------|
| Officers' salaries | \$ 4,576.73 | \$ 2,674.11 | \$ 7,250.84 |
| Office salaries | 2,343.30 | 866.70 | 3,210.00 |
| Office rent and light..... | 1,278.55 | ..... | 1,278.55 |
| Postage | 430.67 | 277.55 | 708.22 |
| Office stationery, printing and supplies | 370.41 | ..... | 370.41 |
| Paper for THE JOURNAL. | | 1,125.54 | 1,125.54 |
| Printing THE JOURNAL .. | | 3,963.93 | 3,963.93 |
| Illustrations and cuts..... | | 292.43 | 292.43 |
| Telephone and telegraph. | 808.18 | ..... | 808.18 |
| Insurance | 8.82 | ..... | 8.82 |
| General expense | 594.70 | 38.80 | 633.50 |
| Cash discounts to advertisers | | 256.28 | 256.28 |
| Commissions on JOURNAL advertising | | 868.71 | 868.71 |
| Traveling expense of Secretary | 150.00 | ..... | 150.00 |
| Traveling expense of Assistant Secretary | 949.00 | ..... | 949.00 |
| Badges | 58.79 | ..... | 58.79 |
| Meetings | 1,807.47 | ..... | 1,807.47 |
| Cancer Committee meeting .. | 169.61 | ..... | 169.61 |
| Postgraduate meetings..... | 466.62 | ..... | 466.62 |
| Defense—malpractice suits .. | 500.00 | ..... | 500.00 |
| Depreciation—furniture and fixtures | 150.00 | ..... | 150.00 |
| Total expenses | \$14,662.85 | \$10,364.05 | \$25,026.90 |

Net income or deficit for the year

EXHIBIT C.
MISSOURI STATE MEDICAL ASSOCIATION SUMMARY OF CASH RECEIPTS AND DISBURSEMENTS BY FUNDS, FOR THE YEAR 1934

| | General Fund | Legislative Fund | Sinking Fund | Defense Fund |
|---------------------------------------|--------------|------------------|--------------|--------------|
| Balances, January 1, 1934 | \$ 4,127.15 | \$2,260.48 | \$ 769.00 | \$ 97.24 |
| Receipts | 27,674.04 | ..... | ..... | ..... |
| Transfer of funds | | 2,672.00 | 1,300.00 | 2,000.00 |
| Total to be accounted for ... | \$31,801.19 | \$4,932.48 | \$2,069.00 | \$2,097.24 |
| Disbursements | \$24,001.30 | \$ 200.00 | ..... | \$ 500.00 |
| Transfer of funds | 3,972.00 | 2,000.00 | ..... | ..... |
| Total of disbursements | \$27,973.30 | \$2,200.00 | ..... | \$ 500.00 |
| Balances, December 31, 1934 | \$ 3,827.89 | \$2,732.48 | \$2,069.00 | \$1,597.24 |
| Fund Balances as of December 31, 1934 | | | | |
| General Fund | \$ 3,827.89 | | | |
| Legislative Fund | | 2,732.48 | | |
| Sinking Fund | | | 2,069.00 | |
| Defense Fund | | | | 1,597.24 |
| Total | \$10,226.61 | | | |

Represented by:

| | |
|--|-------------|
| Cash in transit at December 31, 1934 .. | \$ 104.00 |
| Mercantile-Commerce Bank and Trust Co. | 10,000.98 |
| Secretary's account (First National Bank)..... | 111.63 |
| Petty Cash Fund | 10.00 |
| Total | \$10,226.61 |

MISSOURI STATE MEDICAL ASSOCIATION—DUES
RECEIVABLE AND MEMBERSHIP BY COUNTIES
AS OF DECEMBER 31, 1934

| Dues Receivable | | | | | No. of Mem- bers | |
|-----------------------------|---------|---------|---------|----------|------------------|-----|
| County | 1931 | 1932 | 1933 | 1934 | Total | |
| Adair | \$ | \$ | \$ | \$ 16.00 | \$ 16.00 | 12 |
| Atchison | | | | 16.00 | 16.00 | 13 |
| Audrain | | | 16.00 | 24.00 | 40.00 | 15 |
| Barry | | | | | | 11 |
| Barton | | | 8.00 | 8.00 | 16.00 | 10 |
| Bates | | 8.00 | 32.00 | 52.00 | 92.00 | 14 |
| Benton | | | | | | 7 |
| Boone | | 8.00 | 16.00 | 40.00 | 64.00 | 42 |
| Buchanan | | | 32.00 | 96.00 | 128.00 | 118 |
| Butler | | 8.00 | 16.00 | 16.00 | 40.00 | 18 |
| Caldwell and Livingston | 8.00 | 24.00 | 56.00 | 80.00 | 168.00 | 19 |
| Callaway | | | 24.00 | 48.00 | 72.00 | 17 |
| Camden | | | | | | 2 |
| Cape Girardeau | | | 8.00 | 16.00 | 24.00 | 32 |
| Carroll | | 8.00 | 8.00 | 24.00 | 40.00 | 9 |
| Carter and Shannon | | | | | | 5 |
| Cass | | | | 8.00 | 8.00 | 16 |
| Chariton | | | | | | 17 |
| Christian | | 8.00 | 8.00 | 8.00 | 24.00 | 8 |
| Clark | | 8.00 | 8.00 | 16.00 | 32.00 | 3 |
| Clay | | 8.00 | 24.00 | 52.00 | 84.00 | 28 |
| Clinton | | | | | | 8 |
| Cole | | | 56.00 | 108.00 | 164.00 | 35 |
| Cooper | | 8.00 | 56.00 | 64.00 | 128.00 | 18 |
| Dallas, Hickory and Polk | | | | | | 17 |
| DeKalb | | | 16.00 | 16.00 | 32.00 | 4 |
| Dunklin | | 8.00 | 32.00 | 48.00 | 88.00 | 22 |
| Franklin | | | 16.00 | 40.00 | 56.00 | 20 |
| Gasconade, Maries and Osage | | 8.00 | 16.00 | 24.00 | 48.00 | 7 |
| Gentry | | | 8.00 | 16.00 | 24.00 | 7 |
| Greene | | | 88.00 | 192.00 | 280.00 | 100 |
| Grundy and Daviess | 8.00 | 29.00 | 56.00 | 64.00 | 157.00 | 22 |
| Harrison | 8.00 | 8.00 | 16.00 | 16.00 | 48.00 | 3 |
| Henry | 8.00 | 32.00 | 64.00 | 72.00 | 176.00 | 17 |
| Holt | | 16.00 | 16.00 | 16.00 | 48.00 | 11 |
| Howard | | | | | | 6 |
| Howell, Oregon and Texas | | 8.00 | 16.00 | 24.00 | 48.00 | 24 |
| Jackson | | 16.00 | 80.00 | 320.00 | 416.00 | 575 |
| Jasper | | 16.00 | 24.00 | 40.00 | 80.00 | 59 |
| Jefferson | | | 8.00 | 24.00 | 32.00 | 15 |
| Johnson | | | | 24.00 | 24.00 | 20 |
| Knox | | | | | | 2 |
| Laclede | | 32.00 | 56.00 | 56.00 | 144.00 | 9 |
| Lafayette | | 8.00 | 8.00 | 24.00 | 40.00 | 28 |
| Lawrence and Stone | | 24.00 | 32.00 | 40.00 | 96.00 | 19 |
| Lewis | | | | | | 3 |
| Lincoln | | | | | | 10 |
| Linn | | 8.00 | 16.00 | 24.00 | 48.00 | 16 |
| Macon | | | 8.00 | 8.00 | 16.00 | 7 |
| Marion and Ralls | | | 16.00 | 48.00 | 64.00 | 32 |
| Mercer | | | | | | 7 |
| Miller | | | 16.00 | 24.00 | 40.00 | 13 |
| Mississippi | | | | 8.00 | 8.00 | 6 |
| Moniteau | | | | | | 4 |
| Montgomery | | | | 8.00 | 8.00 | 1 |
| Morgan | | 8.00 | 8.00 | 8.00 | 24.00 | 3 |
| New Madrid | | 8.00 | 8.00 | 16.00 | 32.00 | 3 |
| Newton | | 16.00 | 16.00 | 16.00 | 48.00 | 14 |
| Nodaway | | 24.00 | 32.00 | 68.00 | 124.00 | 24 |
| Pemiscot | | 16.00 | 16.00 | 16.00 | 48.00 | 14 |
| Perry | | | | | | 3 |
| Pettis | | | 16.00 | 32.00 | 48.00 | 34 |
| Phelps, Crawford and Dent | | 16.00 | 24.00 | 44.00 | 84.00 | 24 |
| Pike | | | | | | 12 |
| Platte | | | 8.00 | 8.00 | 16.00 | 15 |
| Pulaski | | | | | | 7 |
| Putnam | | | 8.00 | 16.00 | 24.00 | 6 |
| Randolph and Monroe | | 16.00 | 24.00 | 32.00 | 72.00 | 30 |
| Ray | | | | | | 12 |
| St. Charles | | 16.00 | 16.00 | 24.00 | 56.00 | 28 |

| County | 1931 | 1932 | 1933 | 1934 | Total | No. of Mem- bers |
|--|---------|----------|------------|------------|------------|------------------|
| St. Francois, Iron, Wash- ington, Mad- ison and Reynolds | .... | 8.00 | 24.00 | 64.00 | 96.00 | 37 |
| Ste. Genevieve | .... | .... | .... | .... | .... | 6 |
| St. Louis | .... | 16.00 | 56.00 | 108.00 | 180.00 | 134 |
| County | 24.00 | 100.00 | 780.00 | 1,472.00 | 2,376.00 | 1,040 |
| St. Louis City | .... | 8.00 | 24.00 | 40.00 | 72.00 | 24 |
| Saline | .... | .... | .... | .... | .... | 5 |
| Schuyler | .... | .... | .... | .... | .... | 1 |
| Scotland | .... | .... | .... | 8.00 | 8.00 | 1 |
| Scott | .... | 8.00 | 8.00 | 8.00 | 24.00 | 11 |
| Shelby | .... | .... | 16.00 | 40.00 | 56.00 | 8 |
| Stoddard | .... | 8.00 | 16.00 | 24.00 | 48.00 | 10 |
| Sullivan | .... | .... | .... | 16.00 | 16.00 | 6 |
| Taney | 16.00 | 8.00 | 8.00 | 8.00 | 40.00 | 3 |
| Vernon and Cedar | 8.00 | 8.00 | 16.00 | 16.00 | 48.00 | 27 |
| Wayne | .... | 8.00 | 8.00 | 8.00 | 24.00 | 1 |
| Wehster | .... | .... | .... | 8.00 | 8.00 | 10 |
| Wright and Douglas | .... | .... | 24.00 | 32.00 | 56.00 | 11 |
| Totals | \$80.00 | \$593.00 | \$2,132.00 | \$4,000.00 | \$6,805.00 | 3,126 |

| | |
|--|------------|
| Less Prepaid Dues: | |
| Barton | \$ 4.00 |
| Bates | 4.00 |
| Benton | 8.00 |
| Buchanan | 24.00 |
| Butler | 12.00 |
| Cape Girardeau | 24.00 |
| Gentry | 8.00 |
| Jackson | 92.00 |
| Jasper | 8.00 |
| Jefferson | 16.00 |
| Miller | 48.00 |
| Morgan | 16.00 |
| Pettis | 48.00 |
| Platte | 24.00 |
| St. Charles | 4.00 |
| St. Francois, Iron, Washington, Madison and Reynolds | 28.00 |
| Ste. Genevieve | 48.00 |
| St. Louis County | 48.00 |
| St. Louis City | 100.00 |
| Total Prepaid Dues | \$ 564.00 |
| Net balance | \$6,241.00 |

CORRESPONDENCE

ANNALS OF MEDICAL HISTORY

Richmond, Virginia, March 7, 1935.

To the Editor:

The last number of the *Annals of Medical History*, as you may have observed, carries a disturbing editorial directed to the few subscribers and many readers of this premier publication. In it Dr. Packard sets forth what have been univer- sally recognized as the sterling qualities of the *Annals* and calls attention to the fact that, carrying no advertising matter, it has to depend entirely for support upon its subscribers. Concluding with the announcement that "The *Annals* is faced with the unpleasant possibility that it may have to suspend publication," he remarks that should such an eventuality come to pass "it will be many a long year before a publisher will be found of sufficient courage and disinterestedness to undertake a similar project."

We are all of course familiar with the history of the origin of the *Annals*, of the part Sir William Osler and others of his caliber played in founding it, and of the part its publishers, Paul B. Hoeber, Inc., have had in its worth and heauty. We are proud that such a publication should be produced in this country and none of us is willing to stand idly by and see such a magnificent undertaking perish for lack of support.

The Virginia Medical *Monthly* is writing you to ask if you will not join us and other state journals (1) in putting this matter before your readers editorially, (2) in urging upon individuals and component societies the obligation to become subscribers to the *Annals*. If in this way no more than ten new subscribers in each state are secured, the financial em-arrassment in which the *Annals* finds itself at this time would be completely removed. May we count upon your co- operation?

WYNDHAM B. BLANTON, M.D., Editor

BOOK REVIEWS

INDUSTRIAL TOXICOLOGY. By Alice Hamilton. New York: Harper & Brothers. 1935.

Alice Hamilton's recent publication "Industrial Toxicology" is a condensed and pertinent collection of monographs. The field of various industrial poisonings is well covered and presented in a readable manner. The author has had a wide experience in this line and probably is one of the most outstanding toxicologists in the country.

The book is particularly useful to one who wishes some concise information without wading through volumes of material. E. C. P.

THE SINISTER SHEPHERD. A translation of Girolamo Fracastoro's Syphilidis Sive de Morbo Gallico Libri Tres, by William Van Wyck. MCMXXXIV. Los Angeles: The Primavera Press. 1934. Price \$4.50.

Van Wyck deserves a great deal of credit for his translation of this splendid poem which treats of the origin and treatment of syphilis in the time of Fracastoro which was about 1530. Written in splendid style with the finest detail, the poet gives us a quaint and lyric review of the history, clinical description and treatment of the dreaded malady as it existed in his period. The entire population of the larger cities was in constant fear of this new curse which was sweeping throughout the length and breadth of Europe.

It was believed in his day, as is well known, that syphilis was introduced by commercial vessels trading with the newly discovered West Indies. He states:

In every place beneath a clamorous sky,
There bursts spontaneously this frightful pest.
Few peoples has it failed to scarify,
Since commerce introduced it from the west.

The author was also well versed in the various manifestations of the disease as well as in the stages of the malady and discusses the different theories as to its origin. He says a great many people believed the disease was caused by the planets Saturn and Mars meeting each other in the heavens thus giving rise to poisonous winds which beat down upon the people; although personally he seemed to have his doubts as to the influence of superstitious astrology. He discusses the clinical symptoms of the disease which were much more severe than at present, and mentions the running pustules, the pus-corroded skin, the bloody ulcers, putrid bones, the diseased joints and dried lips.

The treatment of the disease as practiced in Fracastoro's time is intensely interesting; while appearing quackish to modern physicians it was in tune with the best medical practice of the day. He mentions the importance of the state of the constitution if the disease is to be controlled:

If body be thick with bile, in bloated state,
You may be certain that the danger's great.

And swamps with their poisonous vapors were to be dreaded:

Fly from foul marshes and damp, miry places,
And find the heights and open, fertile spaces.

Sweating was considered an important adjunct in the treatment:

Ever must you steam and sweat
Until the ill evaporates away.

Stress was also placed upon the dietetic management:

Let me instruct you in your diet too,
Of pool and lake fish you must beware.

On the forbidden diet list were such delicacies as ducks and geese, entrails, ham, truffles, artichokes, cucumbers, vinegar and sparkling wines.

Herbs and medicinal plants were highly valued for their curative properties. Fracastoro mentions the balm, mint, thyme, briar, hellbore, ginger, squill, myrrh, lemons and oranges. He lauds the orange in the following lines:

When for Adonis Venus spilled her tears,
She shut within your golden rind a gift
Of heavenly virtues, energetic, swift.

The following drugs are also mentioned in the treatment of syphilitic ulcers most of them being caustic: Copper nitrate, potassium nitrate, lead oxide and antimony. The poet gives a great deal of space to the use of mercury which was known to the ancients as "melted silver" and was considered a deadly poison. It was probably first used in the treatment of syphilis by Gilius in 1497. Mercury was extensively used in the form of fumigations, a form of treatment that is now antiquated:

Beneath a weight of covers, sweat until
In dirty drops, has dripped away this ill.

Another drug that was employed extensively was guaiacum or lignum sanctum, a species of lignum vitae, which for a while seemed as if it would dethrone mercury. The leaf and bark of this tree were prescribed in the form of decoctions and infusions. Guaiacum was held in high esteem as an alternative and anti-syphilitic drug, as witness the following lines:

Then flies the malady and ulcer's pus
Is dried. The body grows more vigorous.

N. T.

RECENT ADVANCES IN NEUROLOGY. By W. Russell Brain, M.A., D.M. (Oxon.), F.R.C.P. (London), Physician to the London Hospital, etc., and E. B. Strauss, M.A., D.M. (Oxon.), M.R.C.P. (London), Assistant Physician to the Cassel Hospital for Functional Nervous Disorders, etc. Third edition with 40 illustrations. Philadelphia: P. Blakiston's Son & Co., Inc. 1934. Price —

This book is excellently done in its way and the authors are competent men, one of them, Dr. Brain, being the author of probably the best book extant on clinical neurology. But it contains a curious aggregation of material, one third being chiefly of interest to the brain surgeon, another third having chiefly a physiological bearing and only the final third containing material of general clinical interest. Hence, the volume will be of only limited interest to any one class of readers. Another outstanding defect is the predominance of references drawn from the English language periodicals, a defect that is doubly important because it not only omits major contributions from other lands but gives matter that the English speaking reader is likely to be familiar with.

Naturally the final clinical part of the book omits a great deal of material interesting to the average practitioner. Although a number of methods of inducing heat in the treatment of syphilis are given, tryparsamide is not mentioned. Many different kinds of encephalitis are described but no mention is made of the type in which the spinal fluid is bloody in a large proportion of cases, which was described but the fact is not mentioned that there are many cases of hemorrhagic spinal fluid in which no definite hematoma is formed and which therefore require instead of surgery a treatment that will advance the clotting time of the blood. (The reviewer has found treatment with calcium by vein

and thromboplastin intramuscularly very effective in such cases.) It is difficult to understand why the authors have not taken up the many conditions in which sympathectomy can be of value and also why they do not describe the respirator for use in cases of respiratory paralysis described by Kerridge of their own city in 1934. But the omissions of the book are too numerous to be gone into in detail.

The other side of the picture is that there is a free reference to the literature and that all the matter in the book is authoritative and therefore to be relied upon. There is certainly a field for such a book as its introduction indicates that this one is intended to be. It is impossible for the practitioner to keep up with all the contributions in his own tongue and he usually has but a slight idea of what is occurring among his colleagues who speak a different language. In conclusion it may be said that although no class of readers will find this book complete all will find in it interesting and valuable information.

L. B. A.

HUGHES' PRACTICE OF MEDICINE. Revised and Edited by Burgess Gordon, M.D., Associate Professor of Medicine, Jefferson Medical College, etc. With Sections on Nervous and Mental Diseases by Harold D. Palmer, M.D., Neurologist Outpatient Department, Pennsylvania Hospital, etc.; and on Diseases of the Skin by Vaughn C. Garner, M.D., Assistant Professor of Dermatology and Syphilology, University of Pennsylvania, etc. Fifteenth edition. With sixty-one illustrations. Philadelphia: P. Blakiston's Son & Co., Inc. 1935. Price \$5.00.

That this book is in its fifteenth edition attests its worth. To practitioners who have used this as a textbook it will be an up-to-date review of their studies and also a new study for a wealth of new material has been added. Just a few of the new additions are air-sickness, psittacosis, pneumoconiosis, psychoneuroses, gonadal diseases, granulocytopenia and hyperparathyroidism.

Dr. Burgess Gordon, the new editor, reflects the influence of both an active practice and teaching experience. Dr. Harold D. Palmer has an excellent section on "Nervous and Mental Diseases" and Dr. Vaughn C. Garner one on "Diseases of the Skin." Both are valuable additions.

An index covering twenty-three double column pages makes the material conveniently available. The volume is well bound, well edited and printed and the illustrations, which have been remade and added to, are well chosen.

S. S. B.

GYNECOLOGY. By Brooke M. Anspach, M.D., Professor of Gynecology, Jefferson Medical College. Fifth edition reillustrated, reset and completely revised by the author with the assistance of Philip F. Williams, M.D., Assistant Professor of Obstetrics, School of Medicine, University of Pennsylvania, and Lewis C. Scheffey, M.D., Assistant Professor of Gynecology, Jefferson Medical College. 679 illustrations of which 10 are in color. Philadelphia: J. B. Lippincott Company. 1934.

With the rapid increase of gynecological information in the last five years new textbooks must not only be absolutely up-to-date but must also present the advanced trends of thought on the basis of which new facts and concepts will be founded. Dr. Anspach has written such a book.

The sections on the diseases of the external genitalia,

endometriosis, ovarian tumors, anemorrhea, dysmenorrhea, uterine bleeding and sterility have been rewritten. Entirely new are the sections on constitutional types and endocrine disorders.

Especially fine is the chapter on the causes and treatment of sterility, including a complete discussion of male as well as female responsibility. The technic and evaluation of sperm examination is outlined. The sections on normal and abnormal endocrine behavior are remarkably clear and complete; and a feature unusual in gynecological texts is the discussion of the physiology of pregnancy. Of particular value to the student is the discussion of the significance of the history and its relation to the physical findings.

Other subjects, not usually dealt with in books of this sort, are the diseases of abdominal viscera associated with pelvic disease, backache, hygiene of puberty, selection and preparation of patients for operation, postoperative treatment and complications; minor surgical, electrothermic, medicinal and local treatment, and vaccine and serum therapy. The chapter on radiation therapy is sane and instructive, and the discussion of operative procedures is modern and unprejudiced.

The author's style is clear and exceptionally readable; the arrangement is orderly and the indexing ample. There is a wealth of fine illustrations and diagrams which obviously have for their one purpose clarification of the text and not padding.

Anspach's "Gynecology" is a most impressive contribution and may be recommended as a text for reference and for enjoyable reading.

R. B. S.

PERIODIC FERTILITY AND STERILITY IN WOMEN. A Natural Method of Birth Control. By Professor Hermann Knaus, Head of the Clinic for Gynecology and Obstetrics of the German University of Prague. With a foreword by F. H. A. Marshall, F.R.S. With sixty-four illustrations and twelve tables. Vienna: Wilhelm Maudrich, Publisher. 1934. Price \$6.50.

In the foreword to this excellent monograph Marshall states: "It can no longer be disputed that in some way or other man must assume a more complete restraint over his reproductive functions and subordinate his inclinations to the future interests of humanity. It is only in regard to the manner in which this should be affected that there can be any serious difference of opinion."

In this book Professor Knaus has gathered most of the known facts of the physiology of reproduction and has added in great detail and in a very lucid manner the results of his own research. The chapters on the ovum, spermatozoa and corpus luteum lead logically to the formulation of Knaus' law of ovulation. The determination of the fertile and sterile days and the formulation of a menstrual calendar are described and discussed in detail and the use of the information thus obtained for the prevention of conception as well as for the intentional procreation is indicated. The book concludes with several short but very interesting chapters on other aspects of birth control with a rather personal discussion concerning Ogino, the Japanese investigator in this field, and with a fairly complete bibliography.

The intelligent and modern physician must familiarize himself with all details in this book for surely the layman will soon look to his physician for guidance in this important matter. It cannot be passed off lightly. It should not be necessary to urge the reading of this monograph. The material, so fascinating and thoughtprovoking, and the unintentional bits of humor in this thoroughly scientific book, make it a pleasure to read this volume.

L. C.

ALLERGY IN GENERAL PRACTICE. By Samuel M. Feinberg, M.D., F.A.C.P., Assistant Professor of Medicine and Attending Physician in Asthma and Hay-Fever Clinic, Northwestern University Medical School, etc. Illustrated with 23 engravings and a colored plate. Philadelphia: Lea & Febiger, 1934. Price \$4.50.

In the first eight chapters this monograph relates the history of asthma and hay-fever; gives general information concerning anaphylaxis and allergy, and discusses the pathology, symptoms, causes, diagnosis and treatment of bronchial asthma. The section on hay-fever contains a most informative chapter upon its botanical aspects by O. C. Durham, and one describing its treatment. The last chapter briefly discusses hyper-esthetic rhinitis, urticaria, angioneurotic edema, eczema, contact dermatitis, gastro-intestinal allergy, headache and other possible allergic conditions. The book closes with thirty-nine case histories which illustrate the important phases of diagnosis and treatment by beginning with simple diagnostic and therapeutic problems and ending with problems of greater abstruseness.

This monograph is intended for the average practitioner and in general it fulfills the purpose of the author. It is practical and the general practitioner will not be confused by theoretical considerations. In particular, the text of the botanical aspects of hay-fever is commended. It will enable the physician to determine the most likely pollen responsible for the hay-fever of his locality. This is accomplished by means of charts and maps, and also by tabulations of the principal plants causing hay-fever in each state and in foreign countries with their seasonal occurrences and variations.

However, there are some features which are not praiseworthy. Certain inaccuracies are found, such as classifying the peanut with the nuts, and a typographical error on page 239 in which the pollen dilutions used in treatment are stated to be 1 to 10,000, 1 to 100, 1 to 500 and 1 to 100, when it is probable that 1 to 10,000, 1 to 1,000, 1 to 500 and 1 to 100 are meant. It is debatable whether discomfort should be considered as one of the disadvantages of the intracutaneous method of testing. When properly performed, this method is no more uncomfortable than the cutaneous method. In describing, "testing by passive transfer of reagins," it is stated that the test sites are ready for testing in two or three hours and that tests are made in a day or two. If one did not know that the consensus favors the use of the test site after the elapse of twenty-four or more hours, one would be in a quandary as to which to choose. It is unwise and illogical to devote more space to the description of the use of artificial fever than to any other type of nonspecific therapy in the treatment of bronchial asthma, when this therapy and method of application are only in the experimental stage. The data on the use of fever therapy is only sufficient to allow of mention of its use. Since its application requires special equipment and especial knowledge the details of application should be reserved for specialists. One fears that the relative importance of this nonspecific measure might be judged by the amount of space consumed in the book and not by its actual clinical value. In discussing the criteria for "cure" in hay-fever, it is controversial that "negative skin tests are quite easily obtained at the end of a course of treatment." It would be better to present the available clinical evidence rather than make a dogmatic statement. At the present time "cure" in hay-fever is a clinical phenomenon and not an immunological one. It is not in good taste for the author

to recommend to the physician that his book entitled "Asthma, Hay-Fever and Related Disorders: A Guide for Patients," be purchased by the layman when there are several books of similar nature by other authorities. These are listed in the bibliography and the physician should be allowed to make his own choice uninfluenced by insinuation.

Nevertheless the book is an excellent one for the general practitioner. It gives the present knowledge concerning allergy and its clinical application in simple language and in a manner which can be readily grasped.

C. H. E.

THE GREAT DOCTORS. By Dr. Henry E. Sigerist, Professor of the History of Medicine, The Johns Hopkins University. A biographical history of medicine translated by Eden and Cedar Paul. New York: W. W. Norton & Company. 1933. Price \$4.00.

Karl Sudhoff, the venerable scholar and dean of living medicine, has often pleaded in his writings that a greater interest in medical history be manifested by his contemporaries and followers. No one else has so clearly shown the world the true significance of medical historical research. With tremendous power he has stimulated his students and it must be with pride that he has followed the work of his student, Henry E. Sigerist, who has contributed so much in this field.

"The Great Doctors" consists of forty-eight biographical essays concerning great physicians from Imhotep to Osler; some of the essays, however, contain ample discussions of the lives of others to whom whole chapters could not be dedicated. Each essay is characterized by the same incisive and authoritative manner of expression, yet each is pervaded with a charm difficult to describe and which has lost none of its appeal in the excellent translation of Eden and Cedar Paul.

One is impressed by the tremendous number of facts disclosed in such short space, facts so skillfully handled as to be easily assimilated. Not only are the great doctors of all time made to live again in all their glory of achievement, but the stream of consciousness of medical men of all ages can be followed as in a panorama. The train of medical thought and philosophy with its contemporary as well as its subsequent significance is impressed on the reader almost unconsciously through the vivid portrayals of the men whom we too seldom revere for the priceless heritage which is ours.

Many of the contemporary medical biographies deal largely with the same characters, but in this work the author includes a large number of the physicians of the past that are quite unfamiliar to the occasional reader of medical history. Such names as Diocles of Carystus, the great hygienist, Pietro d'Abano, the translator, Anton de Hain, clinician and mystic, Giorgio Baglivi and Carl August Wunderlich are names not familiar to the most of us, but they are the names of men who in this book live again their tremendously significant careers.

The author in his preface says of his great doctors, "We are about to study the life of each of them, with its peaks and valleys; to learn that, like us, they fought and suffered and erred, that like us, they experienced joy and sorrow. To a large extent we shall recognize our own images in them."

The reviewer could find no faults, and has only praise and appreciation to the author for bringing to us such a wealth of instruction, inspiration and pleasure.

R. B. S.

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SURGERY AT THE TIME OF THE INTRODUCTION OF ANTISEPSIS

THE HODGEN LECTURE

HENRY E. SIGERIST, M.D.

BALTIMORE, MD.

When five years ago I began studying the history of American medicine nothing impressed me more than the life and work of the medical pioneers. The handicaps were tremendous and it required a great deal of energy and enthusiasm to overcome them. In the East the task was relatively easy. Europe was not quite so far away and the young medical man could finish his studies there. The difficulties, however, were tremendous in the West where the soil had to be conquered step by step; where adverse natural conditions made life very hard. Men like McDowell, who performed the first ovariectomy in a log cabin in Kentucky; like Beaumont, who experimented in a fort in the wilderness, remote from all laboratories and libraries; men like Samuel D. Gross who, in spite of all handicaps, became the leader of American surgery, deserve our highest admiration.

I must confess that until a few weeks ago I knew little more than the name of John Thomson Hodgen. His life was less spectacular than that of the men previously mentioned. He is known to the history of surgery chiefly for the many instruments and apparatus that he introduced into surgery, particularly for his wire suspension splints for fracture of the femur and the forearm. And yet, when I began reading the life of Hodgen; when I saw from the addresses read here in St. Louis on the occasion of the twenty-fifth anniversary of his death how profoundly he had impressed his contemporaries, how vivid his memory still was twenty-five years after his death, I

realized that Hodgen too had been one of the great medical pioneers who had helped to make the West a healthy country, pleasant to live in.

Hodgen was one of the founders of the American Surgical Association. In 1879 the American surgeons who assembled for the annual meeting of the American Medical Association in Atlanta felt that the time had come to form their own organization. They felt that surgery was no longer a craft. Great progress had been achieved in the last decade; but more than that, everybody felt that surgery had a great future ahead, greater than ever before. The surgeons of those days were conscious of the fact that they were living through a great period in the history of their art and that they had the privilege of being able to contribute actively to the creation of a new surgery. Under the leadership of Samuel D. Gross, the American Surgical Association was founded and first met in New York in 1880.

When Hodgen was born in Kentucky in 1826 surgery was still restricted to a relatively narrow field. The treatment of wounds, the dressing of fractures, the reduction of dislocations, tracheotomy, lithotomy, herniotomy and a certain number of other classical operations that had been developed through the centuries, was the compass of the surgeon's activities. When Hodgen graduated from the medical department of the University of the State of Missouri in 1848 the situation had been changed. General anesthesia had been introduced and had liberated the surgeon from one of the bonds that prevented surgical development. So far, only such operations could be performed that could be achieved in a relatively short time, as the patient would not have withstood the pain. Now that the surgeon had the possibility of operating on an anesthetized individual and on a relaxed body, great possibilities were given to surgery. When Hodgen died in 1882 the last bond had

been broken and the surgeon had been given the means of preventing not only pain but secondary infection as well.

Hodgen was fortunate in being able to accomplish his life work in this period. And when we read his numerous papers we see that he took advantage of the new possibilities given to surgery and in this way took an active part in the building of modern surgery.

The tremendous development in surgery from the middle of the last century on has been called by Fred B. Lund, in his presidential address,¹ the third Renaissance of surgery, the first being Hippocratic surgery, while the second would be the one represented by Ambroise Paré and his contemporaries in the 16th century. If by the term Renaissance we mean a period of intense activities, rapid progress and great accomplishments, then we may call this period in the history of surgery by that name. Renaissance, however, means rebirth; means that something that had been before but was dead is now reborn. *The Renaissance* is the revival of Greek civilization in its totality and is in the scientific field the revival of the Greek spirit of research. What took place toward the end of the 19th century was the sudden outburst of something definitely new; that had never been before and we must seek the explanation for this unique phenomenon.

We generally hear that surgery evolved because anesthesia and antisepsis set surgery free. There can be no doubt that anesthesia and antisepsis were decisive factors in the development but they are not the cause. If Ambroise Paré or the Hippocratic physicians had possessed the same methods of preventing pain and infection, they still would not have accomplished what the surgeons did at the end of the 19th century. The causes of this great development of surgery, therefore, must lie deeper and must be sought in the structure and general development of medicine. In order to understand this development we must go far back into the history of medicine, and you must allow me to discuss some special features of the history of surgery.

Whenever we compare the development of surgery with the development of medicine we will find that both developed along similar lines; and yet there are some very characteristic distinctions. Surgical procedures are very old. A foreign body was always instinctively withdrawn, or bleeding was stopped by means of pressure. Primitive medicine was a queer combination of magi-

cal, religious and rational procedures. And we find magical elements in surgery as yet. In the *Odyssey*, a hemorrhage is stopped by incantations. But surgery liberated itself from magical and religious elements very early. We can readily imagine the process. An abscess may have been treated by incantation. After a certain time the pus would break through. The next step would be that the priest-physician recited the incantation while he directed his slave in the opening of an abscess through an incision. The final step, then, would be the dropping of the incantation entirely. Medicine, dealing with diseases of the inner organism that could not be seen, preserved the magical elements for a much longer time.

Another characteristic difference in the development of medicine and surgery is that surgery being a craft was transmitted by word of mouth from father to son, and from master to pupil, while the tradition of medicine was developed largely along literary lines. Prescriptions had to be given in writing. The physician always had a strong need for a theory, without which he could not have grasped the manifold manifestations of disease. His behavior was largely the result of his theoretical conceptions. The fact that medicine was always based on theories and that theories were generally the result of philosophic views, had the consequence that it was extremely difficult to transmit a system of medicine from one country to another, from one civilization to another. Surgical knowledge, however, was early transmitted from one country to another, from one civilization to another. The surgeons traveled a great deal, either as wandering craftsmen or following armies, and they learned new operations in a foreign land. Back home, they transmitted their knowledge to their pupils. This peculiar way of spreading surgical knowledge by word of mouth explains many features in the history of surgery. We find a highly developed surgery in Greece, in the 5th century B. C., the beginnings of which are unknown to us; and again we find a highly developed surgery in 13th century Europe the roots of which we cannot trace in the literature. The reasons are that in the 5th century B. C., as in the 13th century A. D., the surgeons were educated men who wrote books telling us what they were doing. In the preceding centuries there was surgery also but these surgeons did not write. Yet there is no doubt that there was a continuous development.

However, it would be quite wrong to as-

sume that medicine and surgery developed along independent lines. This may be true for the technic of surgery but not for its application. Whether an operation was performed or not depended not so much on whether the surgeons were able to perform such an operation technically or not as on the medical theories prevailing at the time. If medicine required an operation the technic was developed by necessity. The Greek craftsmen, like their Oriental colleagues of our day, performed such astoundingly skillful work with their hands that they could have learned to operate if the need had been felt. As long as the theory of the four humors was prevalent, and disease was considered the result of a disturbance in the normal balance of these humors, the logical therapy was dietetic, the diet being enforced by the application of drugs. Surgery, in such a case, was an *ultimum refugium*. The development of anatomy and of anatomical thinking in medicine gave surgery an entirely different position, and this explains the great development in the 19th century.

When we study the history of Occidental medicine from the 16th century to our days, we find an absolutely logical development that could have been predicted at any time. One leading idea goes like a red thread through the entire development. There are ups and downs, there are deviations from the line, there are attempts to escape, and yet medicine always went back to the course started in the Renaissance. This great idea was *anatomy*, which in the hands of Vesalius and his followers became the foundation of modern medicine; but it was more than a mere foundation; it became a method of thinking in medicine. And the history of medicine from the Renaissance to our day is the history of anatomical thought in medicine.

The 16th century laid the foundations. Artists and physicians set to work discovering the secrets of the structure of the human body. In the 17th century anatomy became *anatomia animata*. A new physiology was born which was not philosophic in character, but scientific and bound to the organs the functions of which it endeavored to explain. Structure and function were inseparably bound together, one explaining the other. The 18th century discovered that the symptoms of disease are nothing less than the expression of abnormal functions. If the function is wrong, the organ must be. The symptoms were followed up to the organs and, in the hands of Morgagni, pathology

became pathological anatomy. As soon as one had the conception that the diseases are morbid entities, determined primarily by the underlying anatomical lesion, clinical medicine was facing a new task. Diagnosis became organ diagnosis. With all means available one endeavored to look into the human body, to do on the living patient what the pathologist was doing on the cadaver. The methods of percussion and auscultation were invented, which allowed the physician to make an anatomical diagnosis of the lungs, the heart and other organs. Mirrors and electric bulbs were introduced into all cavities so that the physician's eye could see the anatomical changes. The discovery of the roentgen rays and their application to diagnosis crowned this development. Our whole system of disease was greatly modified through these studies.

There was one field of medicine which, in the beginning of the 19th century, had not yet been conquered by the anatomical thinking; namely, therapy, which still followed traditional lines. Laennec, one of the pioneers of modern medicine, who contributed more to the development of anatomical thinking than many other physicians, declared that in treating patients he followed the traditions, applying remedies that experience had taught were efficient. And the Viennese school was well known for its therapeutic nihilism. It is obvious that this last field of medicine was to be conquered by necessity. As soon as anatomical alterations were made responsible for the diseases the tendency must awaken to correct these alterations. And the most direct way was by means of surgery. This mental attitude, this way of thinking in medicine, naturally led to the tremendous development of surgery in the second half of the 19th century. An operation was no longer an *ultimum refugium* but came to occupy a primary position in the physician's thinking. And because the need was felt the means was found. I would like to reverse the statement mentioned before. Surgery became great, not because anesthesia and antisepsis were introduced, but anesthesia and antisepsis were found because surgery was to become great; because surgery was the anatomical method of therapy.

Other fields of therapy followed the same trend. A new pharmacology was born, drugs were no longer applied on a purely empirical basis. The effect of drugs and chemical compounds on the normal and diseased organisms were studied in experi-

ments, and when a physician then applied a remedy he did it, not blindly, but aiming at a definite organ, or tissue, or group of cells. Surgery, however, remained the strongest expression of anatomical thinking in therapy.

The crucial, the heroic years of surgery were from 1867 to 1891; from the first paper of Joseph Lister on antiseptics to the publication of the results of asepsis, as practised in the clinic of Bergmann in Berlin by Schimmelbusch. To be sure, great operations were performed before that time in the early part of the century. The bold ligations of the English surgeons are well known. Great surgical names adorn this early period. Suffice it to mention Sir Astley Cooper, the Bells, Liston, Syme, in England; Lisfranc, Velpeau, Malgaigne in France; Langenbeck in Germany; Pirogof in Russia. Bold operations are recorded in America also. McDowell's ovariectomy has been mentioned before. J. Marion Sims' operation for vesicovaginal fistula won him great renown on both continents; Valentine Mott was famous for his bladder stone operations and for ligations; in 1818 he tied up the *arteria innominata* two inches away from the heart. In 1820, a Baltimore surgeon, Horatio Gates Jameson, performed a total excision of the upper jaw. In 1850 the technic of thoracocentesis was worked out and greatly perfected by Morrill Wyman. Anesthesia made possible more and more serious operations. In 1861, Erastus Wallcott in Milwaukee removed a kidney. In 1867, an Indianapolis surgeon, John S. Bobbs, undertook a cholecystotomy.

However, important as these operations are, they were not general. They were performed once or twice by a few surgeons. Too many risks were involved so that the patients did not readily consent to submitting themselves to such operations. Too many casualties resulted from them, mostly from secondary infections. Septicemia, pyemia, erysipelas, tetanus, hospital gangrene, were extremely frequent. To the 13th century surgeon the ideal healing of wounds was the direct healing by first intention. The introduction of firearms in the 14th century produced wounds that were as a rule primarily infected, so that the belief became prevalent that suppuration was the normal process of wound-healing. Most of the infectious diseases were considered as miasmatic contagious diseases against which little could be done.

A surgical ward in these preantiseptic

days was a pitiful sight. When you entered it you smelled the sweetish, foul odor of pus. The patients looked very sick, with red cheeks and feverish eyes; or they had the pale faces of septic patients. When you looked at the dressings you found them saturated with pus. The hospital was a dreaded place.

Then, in 1867, Lister's first paper was published, describing a new method of treating compound fractures, abscesses, etc., with observations on the conditions of suppuration. A second paper followed the same year "On the Antiseptic Principle in the Practice of Surgery." A new principle was announced, which to us seems extremely simple. Suppuration is the result of decomposition which is caused by the presence of germs. Where do these come from? Pasteur had demonstrated that the air was teeming with germs. Lister's conclusion, therefore, was that the germs have to be kept off the wound, and that those which had entered the wound should be destroyed, which was done by applying a dressing with carbolic acid, and later, in addition, by spraying carbolic acid around the patient. In Lister's own words:²

In the course of an extended investigation into the nature of inflammation, and the healthy and morbid conditions of the blood in relation to it, I arrived, several years ago, at the conclusion that the essential cause of suppuration in wounds is decomposition, brought about by the influence of the atmosphere upon blood or serum retained within them, and, in the case of contused wounds, upon portions of tissue destroyed by the violence of the injury.

To prevent the occurrence of suppuration, with all its attendant risks, was an object manifestly desirable; but till lately apparently unattainable, since it seemed hopeless to attempt to exclude the oxygen, which was universally regarded as the agent by which putrefaction was effected. But when it had been shown by the researches of Pasteur that the septic property of the atmosphere depended, not on the oxygen or any gaseous constituent, but on minute organisms suspended in it, which owed their energy to their vitality, it occurred to me that decomposition in the injured part might be avoided without excluding the air, by applying as a dressing some material capable of destroying the life of the floating particles.

Upon this principle I have based a practice of which I will now attempt to give a short account.

Lister's theory was violently opposed. It is easy to praise him today after history has proved that he was right. But we must try to understand his opponents as well. Medical history has a great many heroes. As in every epic or drama, the hero is opposed by villains; so have the medical heroes been opposed by colleagues who failed to understand the importance of their work. History has stamped them as villains, as fools, and yet they undoubtedly had very good argu-

ments for their opposition. William Harvey had taught that the blood stream flowed from the arteries into the veins. But he did not know of the existence of the capillaries. He had to assume that there was such a passage. There were good arguments to oppose Lister also. Assuming that the air was teeming with germs, it was not yet proved that these germs could cause disease. They were breathed in and out constantly without causing any harm. And in the case of wounds, the open treatment advocated by the Viennese surgeon Kern and by many others had given very good results. It is true that Pasteur had shown that some of these germs are able to cause important biological processes, as was the case with fermentation. Yet there was no evidence that these germs could cause sepsis or other similar disturbances. And even assuming that suppuration was a decomposition and that germs were to be found, there was still the possibility of spontaneous generation to be considered. A surgeon, deciding to follow Lister's advice found himself facing great difficulties. Lister wrote one paper after another, modifying his instructions constantly. The method was complicated and expensive. Operating in an atmosphere loaded with carbolic acid was a torture which no surgeon would undergo unless he was convinced of the efficacy of the method.

In this way, Lister found little response from 1867 to 1872. The Germans did some experimenting during the Franco-Prussian War but the results were not convincing. In this country, Samuel D. Gross published a fifth edition of his "System of Surgery" in 1872, and wrote there (p. 482):

The employment of antiseptic agents has for its object the prevention and arrest of putrefaction in wounds, whether accidental or surgical, by devitalizing or rendering inactive the germs which induce it. According to the panspermic theory of Pasteur, the atmosphere is loaded with invisible living germs, which, coming in contact with the putrescible material—effused blood and plastic matter—of open wounds, induce putrefaction and consequent irritation, which, in its turn, gives rise to suppuration and constitutional disorder. Hence the aim of the antiseptic method of treatment is to destroy the septic energy of the atmospheric germs, through which putrefaction and the morbid processes which result from it are prevented.

Although the researches of Pasteur and other observers have established the existence of myriads of low forms of organisms, especially fungoid spores, in our breathing atmosphere, the demonstration of living, disease-producing germs is wanting. Hence, physicians, myself included, have been somewhat chary in accepting the germ theory of the decomposition of animal matter. There is not the slightest difficulty, on the other hand, in comprehending that the atmos-

phere of ill-ventilated and long-occupied hospitals contains a noxious, invisible, permeable dust, holding in suspension epithelial and pus cells and other particles of organic matter, which is capable, by direct contact with wounded surfaces or open sores, of inducing putrefaction, suppuration, and their evil consequences, and also of giving rise to the phenomenon of blood-poisoning through its absorption by the lungs. During our late war I had repeated opportunities of observing the toxic effects of the tainted atmosphere of our city military hospitals, and the rapid improvement in the condition of the wounded upon their removal to the purer atmosphere of tent hospitals in the vicinity of the city. My experience, moreover, in private practice, has convinced me that abscesses may be opened, that wounds, as those made in the removal of tumors, may close, and that compound fractures may unite, as readily without as under the use of antiseptic agents, and I have, therefore, of late, employed them, not to prevent, but merely to arrest the processes of putrefaction, and to destroy its products. In hospital practice, however, prevention should be aimed at.

A change of attitude can be observed in the years 1872-1874 and it took place in Germany. In 1872 an army surgeon, a student of Bardeleben, A. W. Schultze, read a paper before the Society of Army Surgeons in Berlin in which he reported on a study trip taken through Germany, Belgium, Holland, England and Scotland, and on the experiences gained in the field of antiseptic. This talk encouraged experiments. Most instrumental in the development was Richard Volkmann, professor of surgery in Halle, who worked under very unfavorable conditions, having a high percentage of post-operative infections. He was skeptical as far as antiseptic was concerned, but began experimenting in November, 1872. The results were extremely encouraging. He went on for fifteen months and read a paper in April, 1874, before the German Surgical Association, founded two years previously. In 1875 his publication on the subject appeared. He was very careful, was not at all convinced that the theory was correct, but he had results, and very good results. The consequence was that the method of antiseptic was adopted by the German surgeons and that it spread from Germany to Scandinavia and Switzerland. In France, in 1876, Lucas-Championnière became a fervent advocate of antiseptic.

American surgeons were still reluctant. But then, in 1876, Joseph Lister came to America to attend the Fifth International Medical Congress, held in Philadelphia in connection with the centenary celebrations. Lister spoke for two and one half hours, answered questions for one more hour, and made a profound impression. However, I hope that he did not read what Samuel D. Gross had written about antiseptic on that

occasion. The *American Journal of the Medical Sciences* published a series of articles on the development of medicine in the hundred years just passed. Edward H. Clarke wrote on practical medicine, Henry J. Bigelow on the discovery of modern anesthesia, T. Gail-
lard Thomas on obstetrics and gynecology, John S. Billings on literature and institutions, while Samuel D. Gross gave an excellent sketch of the development of surgery in this country. The papers were reprinted in a book and published under the title, "A Century of American Medicine, 1776-1876." In his article Gross wrote (p. 213):

Thus, the treatment of wounds and injuries has been greatly simplified during the last fifty years. The importance of rest and of the prevention of pain in these and other lesions is universally recognized. The adhesive process is aimed at after all operations, whether small or great. None but the most simple dressings are employed. Little, if any faith, is placed by any enlightened or experienced surgeon on this side of the Atlantic in the so-called carbolic acid treatment of Professor Lister, apart from the care which is taken in applying the dressing, or, what is the same thing, in clearing away clots and excluding air from the wound;—an object as readily attained by the "earth dressing" of Dr. Addinell Hewson, of Philadelphia, and by the oil dressing—composed of a thin layer of cotton or patent lint, wet with olive oil—which I have myself employed for many years, with signal benefit, in nearly all cases of wounds under my charge, whether the result of accident or design. Such a covering, at once light and simple, answers every purpose even in the largest wounds, excluding the ingress of foreign matter, and keeping the tissue moist and comfortable."

However, Lister's visit, and the demonstrations that he gave in Philadelphia, in Boston in Bigelow's clinic, in New York, could not but impress the surgeons of this country. In 1877 Robert F. Weir wrote:³

It is only lately that, in America, attention has been given practically to the teachings of Lister in respect to the treatment of wounds. In fact, aside from an article by Schuppert in the *New Orleans Medical and Surgical Journal*, little or nothing has appeared in our medical journals relative to the results of the so-called antiseptic method. Within the past year, however, a change has occurred, due probably both to the interest excited by the personal expositions of Lister at our late Medical Congress at Philadelphia, and also to the satisfactory results that have ensued from this treatment in the practice of many German surgeons with large hospital experience. The reason why American surgeons—who justly have the reputation of being eager to seize upon any improvement in their art—have been tardy in testing the success of this mode of treatment, may, perhaps, be stated as follows: 1. That the treatment, as enunciated by Mr. Lister, has been repeatedly changed in its details; 2. That it was too complicated, and demanded the supervision of the surgeon himself, or, in a hospital, of a carefully-trained staff of assistants; 3. That many who had tried it had been unsuccessful in the cases where the essay was made. But the most weighty objection which was asserted or entertained, was the positiveness of the

enunciation of the germ-theory in explanation of the process of decomposition in the secretions of a wound.

German medicine became more and more influential in this country. And the German experiences in antiseptics combined with the impression of Lister's personal appearance finally opened up the way for the introduction of antiseptics in this country. Many physicians now applied the method, and yet the leaders remained skeptical. In 1882, Samuel D. Gross published a sixth edition of his "System of Surgery." In his preface he paid a warm tribute to Lister (p. vi):

In taking a retrospect of the last fifteen years one cannot fail to be struck with the extraordinary strides which surgery has made during this brief but prolific period in the world's history. . . . To Professor Lister must be accorded not a little praise for the part he has played in this wonderful work. If only one tithe be true of what his admirers claim for him, enough remains to entitle him to the credit of being one of the world's eminent benefactors. It was he who first taught surgeons the importance and value of thorough cleanliness in their operations and dressings before his time so little understood and so seldom practised.

But then he said (p. 346):

I have never found any appreciable benefit in such a case from the use of antiseptic dressings, although they are regarded by many surgeons as most valuable accessories. The antiseptic method, when strictly adhered to, demands rigid attention to minute details, so that it has been modified in various ways, of which the most popular appears to consist in irrigating or washing the wound with a solution of carbolic acid, boracic acid, salicylic acid, benzoic acid, thymol, oil of eucalyptus, chloride of zinc, boracic alcohol, and afterwards enveloping the part in cotton-wool or absorbent cotton. The merits of ordinary cotton-wool in preventing the ingress of microscopic organisms from the surrounding atmosphere are justly praised by Guérin, Gamgee, Little, of New York, and the late Dr. Green, of Portland, and it is also constantly useful for affording gentle and systematic compression. At the present day, carbolic acid is falling in desuetude. As I have pointed out in the section on septicemia and pyemia, it does not prevent the development of micrococci and bacteria in the pus of wounds, and its employment has not only frequently given rise to serious symptoms of poisoning, but it has been followed by death in a number of instances.

In 1880 the American Surgical Association was founded and it is obvious that the treatment of wounds was discussed in the first meetings. It is very enlightening to consult the first volumes of the transactions of the Association. In the meeting of 1882, W. T. Briggs, of Nashville, discussed the antiseptic treatment of wounds after operations and injuries. He calls the antiseptic treatment a revolution in wound management that made an epoch in surgery. He states "the advance of surgery, in the last ten years, equals what usually requires a century to accomplish." Then, his conclusions are:

1. The germ theory of wound infection is not established.

2. The antiseptic treatment of wounds after operations and injuries is not limited to Listerism nor to any other special method, but is based upon broad, general principles.

3. Antiseptic surgery embraces every condition or agent that tends to prevent putrefactive changes in wounds, or to remove or neutralize the effects of such changes when they have occurred.

4. All wounds are healed by reparative inflammation.

5. All wound accidents are the result, either directly or indirectly, of destructive inflammation.

6. The antiseptic treatment of wounds, properly considered, consists first, of such means as will restrain inflammatory action within reparative bounds; and second, of such means as will subdue excessive action and remove or neutralize the effects of destructive inflammation.

In the meeting of 1883 B. A. Watson, a New Jersey surgeon, spoke warmly in favor of Lister's antiseptis. But the ensuing discussion revealed that the antiseptic treatment was by no means generally accepted, but, on the contrary, had been abandoned by many surgeons. It seems worth while to reproduce the entire discussion as this document pictures the actual state of the problem better than anything else:⁴

Dr. J. H. Packard, of Philadelphia, Pennsylvania: If I understood the essayist correctly, I must take exception to his statement that the majority of American surgeons have adopted Listerism. Certainly, on behalf of the surgeons of Philadelphia, I feel warranted in saying that it has not in their hands yielded such results as to induce them to adhere to it.

Dr. Alfred Post, of New York, N. Y.: I think I can say the same in regard to the surgeons of New York; I do not think that any of them now use the method.

Dr. A. Vanderveer, of Albany, N. Y.: I can say the same with regard to the surgeons of Albany and vicinity. In 1878 I published one of the first papers in this country on the death of a patient from poisoning by carbolic acid in a case of ovariectomy. And I desire also to call attention, in connection with Dr. Watson's statement with regard to the value of carbolic acid, to the fact that it occupies one of the lowest positions in the list of antiseptic agents, much inferior, for instance, to corrosive sublimate.

It is the thorough drainage that is the important factor in the treatment of wounds.

Dr. T. G. Richardson, of New Orleans, Louisiana: There is not a surgeon in our State who uses the Lister method.

The power of carbolic acid to control inflammation is, I think, very slight.

Dr. C. H. Martin, of Mobile, Alabama: I wish to state that there is not a surgeon in the State of Alabama who uses the Lister method now. We have ceased to use it entirely.

Dr. T. A. McGraw, of Detroit, Michigan: I had the misfortune some time ago to lose a patient from following out the Lister system; a loss which I ascribed to the poisonous effect of the carbolic acid.

The case was that of a boy, on whom I performed an amputation at the knee-joint. I used a two per cent solution of carbolic acid. After the operation I

dressed the wound with adhesive plaster, then wrapped it in cotton and applied a bandage. I employed the method in detail. I left my patient in good condition, free from pain, resting well, with no fever, and the pulse good. In the morning I found him in a condition of coma, with contracted pupils, and a rapid, feeble pulse, and from that time he sank, and in two days died.

Dr. W. W. Dawson, of Cincinnati, Ohio: You are, Mr. President, the apostle of antiseptis. You have taught, and still teach, that it is cleanliness. Listerism is still upon its trial. Is the better success we have the result of the use of the germicides, or does it come from cleanliness? One of our surgeons, Dr. Dandridge, has practised Listerism in all its completeness, and I doubt whether his success has been greater than that of surgeons who were ever watchful as to drainage, to ventilation, and disinfection.

To Dr. Markoe we are all indebted for the most thorough drainage. Under what is known as Markoe's "thorough drainage" wounds heal with unwonted rapidity. This is doubtless a step in advance.

Dr. H. F. Campbell, of Augusta, Georgia: I believe that the action of the carbolic spray has the effect of retarding the suppuration in a wound, but I do not think that it is due to the influence of carbolic acid upon germs. I think that it arises from its effect on the reflex relations between the blood-vessels and the sensitive nerves.

Dr. David Prince, Jacksonville, Illinois: In my opinion, we cannot be too thankful to Mr. Lister for directing the attention of the profession to the method of treating wounds so as to avoid the influence of those agents which we know float in the air. But the Lister system is so complicated in its details that it is doubtful whether it can retain its hold in practice when it is found that other and simpler methods will do as well. We cannot too much honor the man who stood at the head of the reform in the management of wounds that is now universally adopted not in detail but in general practice. If Listerism means the detail of the dressing of wounds, doubtless it is short-lived, but if Listerism means the principles which are involved in antiseptis, Listerism is immortal. We know, Mr. President, that the open dressing of wounds, so that they shall be antiseptic, is as good as the closed method. The great end is to prevent putrefactive processes, and whether you attain this end by the use of carbolic acid, salicylic acid, iodoform, or corrosive sublimate, it is the same.

Dr. R. A. Kinloch, of Charleston, South Carolina: I wish to express my faith, to a large extent, in the Listerian principles and the use of carbolic acid. It seems to me that we are here today, as American surgeons, expressing opinions which will not be received very generally by surgeons throughout the world. As American surgeons it would appear from the discussion which has taken place that we are almost forced to say, that Lister had introduced a system capable of doing not much good, but a great deal of harm.

Dr. C. B. Nancrede, of Philadelphia, Pennsylvania: Having expressed my views on the subject of Listerism at the last meeting, I will not now occupy the time of the Association further than to say, that, having tried the method, I had abandoned it to ascertain whether my results were really attributable to the superiority of the dressings. My results were so much worse than with Listerian dressings, that I returned to it; besides, I have seen indisputable proof of the superiority of Listerism in the practice of one of my colleagues. I think that Dr. Packard is under some misapprehension when stating that no one in Philadelphia believed in the principles or adhered to the methods of Lister. Be-

sides myself, there are a number of surgeons who either in some special operations or in all are Listerians.

Dr. B. A. Watson: It seems to me that the gentlemen have mistaken entirely the tenor of my paper, as they do everything that relates to Listerism. They appear to infer that the paper relates to the use of carbolic acid alone. The paper does not refer to the use of the acid alone, or to the use of any other single agent, but to the peculiar treatment which was perfected and introduced by Mr. Lister. Although carbolic acid may be condemned, yet the system which was introduced by him must be saved. Again, I think the gentlemen are mistaken in asserting that I said all the surgeons of the United States are advocates of the system. On the contrary, I know that Listerism in America has made but little progress; but, nevertheless, the present system of surgical practice has been modified to a very great extent by the introduction of the Lister treatment, and we find scarcely a wound treated in the United States today but what some part of Listerism is adopted. It is contended that some parts of it are good and some bad.

Thorough drainage was never practised to any great extent prior to the introduction of Listerism. Further, the great care and attention that is paid to cleanliness was not thought of until Mr. Lister came forward with his system and practice. And when we object to this and that part of the Lister system, it seems to me that we are not objecting to Listerism as a whole. Some aim their darts at the spray and think that is the whole of the system; but the great objections come not from those who have tried Listerism, but from those who are willing to raise their hands and thank God that they have neither witnessed its application nor used it.

In the volume of the transactions published in 1885 not a single paper is devoted to antiseptis. I have the impression that in many cases the American surgeons skipped the antiseptic era and went straight into the aseptic period. They all recognized the fundamental importance of cleanliness.

The weak point of Lister's method was its theoretical foundation. The germ theory could not be generally recognized as long as the germs were not better known. Robert Koch's work on the subject, therefore, had a decisive influence. In 1878 he published his "Aetiologie der Wundinfektionskrankheiten"; in 1881 "Zur Untersuchung von pathogenen Mikroorganismen," and "Ueber Desinfection." He succeeded in describing the microorganisms responsible for the infection of wounds. But he also showed that carbolic acid was not a good disinfectant. Lister's method underwent great modifications. The spray disappeared from the operating room. Carbolic acid was replaced by other substances. One recognized that what threatened the wound was not so much the surrounding air as the surgeon's hands and the objects that get in touch with the wounds, thus confirming the experiences of Semmelweis in puerperal fever. Chemical

disinfection was replaced by physical disinfection, and antiseptis became asepsis.

Surgery was set free. There seemed to be no limit to the surgeon's activities. One organ after another was attacked. If I had to review the contributions of those years I would have to discuss the whole field of surgery. In former times, major operations were performed only by a few particularly gifted great surgeons. But now methods were worked out and standardized, so that one need not be a genius to be a good surgeon.

This development of surgery had great consequences in many fields, of which I can mention only a few. The hospitals, once much dreaded places, became the chief centers of therapy. And in the reorganization of the hospitals in this country the surgeons played the leading part when the American College of Surgeons established its hospital standardization program. In former times, the surgeons were craftsmen and surgery was a technic. Now, surgery became a science and medical research was done increasingly by surgeons.

Where do we stand today? From what I have said it appears that in the history of western medicine a cycle has come to an end. The anatomical method has conquered all fields of medicine. We are in the beginning of a new period. After having been anatomical for a long time, medicine today is becoming more and more physiological. We find that same development from a structural to a functional, from a static to a dynamic approach, not only in medicine, but in all realms of life. In the development to come, American medicine undoubtedly will play a more and more dominating part.

If John T. Hodgen could come back to the world today, if he could see the two medical schools in this city and the numerous hospitals, if he could watch the surgeons operating, he would undoubtedly be overwhelmed. But we would tell him that if progress has been made it has been upon the foundations that he and his contemporaries laid. And we could further tell him that we have not surpassed him in some respects—in his professional attitude, his enthusiasm for a good cause, in his profound idealism.

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BIBLIOGRAPHY

1. Fifty Years of the American Surgical Association, Transactions of the American Surgical Association 48:1-17, 1930.
2. British Medical Journal 2:246, 1867.
3. Weir, Robert F.: New York M. J. 26:561-562, 1877.
4. Transactions of the American Surgical Association 1:219-223, 1883.

CLASSIFICATION AND TREATMENT OF ACUTE HEAD INJURIES

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Because of the increasing frequency of head injuries there is an ever-increasing literature on the subject. For this reason additions to this literature may be subject to criticism, but because of the differences of opinion on several points a review of cases and of procedures followed in this neurosurgical clinic should be worth while.

The number of cases is relatively small for the great majority go to the municipal and county hospitals. Too, this clinic has throughout the years regularly laid more stress on neoplastic rather than on traumatic cases. In this review only those admitted to Barnes or Children's hospitals have been included. Numerous cases have been treated or seen in consultation in other institutions but in many instances the records and follow-up notes are rather incomplete. Since the cases in the above named hospitals are numerous enough to afford an accurate index the others are unnecessary.

In this paper an attempt will be made to express the views of this clinic on two phases of acute head injury cases. First, the general signs and symptoms, and second, a method of classification of individual cases as to diagnosis, prognosis and treatment. A statistical study of results will also be shown.

The present study is based strictly on acute or recent injuries. A survey of late effects, such as subdural hematoma and posttraumatic epilepsy, will form the basis for subsequent communications.

It is very important that fractures of the skull be considered in the light of underlying brain damage. The skull being an irregular sphere is subject to momentary changes of shape. The brain being surrounded by and to a certain extent filled with fluid may in part at least accommodate itself to this change. When these limits are passed brain damage results and this damage may be any pathological lesion between the microscopic destruction of isolated cells to gross lacerations of brain, vessels or meninges. The type of injury may vary with the type of force producing it, i.e., a force of great mass and moderate velocity may produce generalized, scattered areas of contusion; while a force of small mass and great velocity,

such as a golf-ball, may produce a circumscribed depressed fracture with a single underlying area of contusion. In the case of generalized areas of contusion the most common sites are the tips of the temporal lobes, the tips and under-surface of the frontal lobes and the occipital poles.

Should the intracranial damage be extensive there will result an increase in intracranial pressure. This may be produced in one of three ways, viz.: (1) Actual hemorrhage with the blood clot encroaching on the intracranial contents. (2) Rupture of the arachnoid may allow cerebrospinal fluid to be forced out into the subdural space. Since this is normally only a potential space, and contains no facilities for cerebrospinal fluid absorption the unabsorbed fluid causes an increase in intracranial pressure. (3) With either general or localized areas of contusion edema develops and this produces increased pressure. It has been shown that tissues deprived of oxygen take up fluid and swell. With the rupture of some vessels and thrombosis of others as a result of the trauma there may be a considerable portion of brain tissue either deprived of or having a lessened amount of oxygen so that the resulting edema may be extensive.

This increase in intracranial pressure from either of the sources mentioned results in an acute cerebral compression which gives rise to certain clinical manifestations, and in order to classify and treat these cases properly it is necessary to understand the mechanism involved in producing the symptoms.

In the medulla are three so-called vital centers, viz.: Respiratory, vasomotor and cardio-inhibitory. Remembering that clinical cases do not respond as constantly or as promptly as experimental cases to increased intracranial pressure it is possible to explain certain reactions to compressing forces by its effects on these centers. Four rather definite stages of compression may be recognized:

1. Mild cases in which the compressing factor is compensated for by displacement of cerebrospinal fluid.

2. When the pressure passes this point compression of the cerebral veins results in symptoms such as headache, restlessness, excitement, etc.

3. When the intracranial pressure reaches the height of the arterial pressure temporary impairment of circulation with its resulting lack of oxygen, through its effect on the vital centers named above, produces rise in blood pressure, slowing of the pulse, and deep, stertorous respirations. The rise in blood pressure causes renewed brain circulation; and this process is

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repeated until the medullary centers eventually fail to respond. Then the fourth stage is reached in which the blood pressure falls, the pulse becomes rapid and weak and death ensues very promptly.

In any case of brain injury a careful neurological examination is absolutely essential; but equally important is a careful check up of certain general signs in order to evaluate and classify the case properly for treatment and prognosis. These signs are blood pressure, pulse rate, respirations and temperature.

Blood Pressure.—In rapidly increasing intracranial pressure one usually sees the rapidly rising blood pressure which means that immediate surgical intervention is necessary. The most common cause of very rapidly rising intracranial pressure is intracranial arterial hemorrhage, usually from the middle meningeal artery. It should be remembered, however, that absence of rapidly rising blood pressure does not rule out rapidly increasing cerebral compression, for a brain injury may interfere with the normal physiological response. It is also very true that immediately after an injury one frequently sees a low blood pressure, but this is a part of the phenomenon of shock which may be associated with injuries in any part of the body.

Pulse Rate.—During the period of shock the pulse rate is rapid, but when the classical signs of increased pressure appear the pulse usually becomes slow as the blood pressure rises and may drop to 40 to 50 per minute. If the fall in pulse rate is accompanied by rise in blood pressure it is more significant than when only the pulse rate is slow, for one sees a slow pulse not infrequently in rather mild cases of brain injury. A slow pulse, however, always means that the patient must be carefully watched.

Respiration.—During the period of shock respiration may be very shallow, but as increased intracranial pressure develops it becomes deep and stertorous. Unless the compression is relieved it may become Cheyne-Stokes in type or drop as low as 2 to 4 per minute. Pulmonary edema is frequently an accompaniment of grave intracranial injuries.

Temperature.—After the shock is recovered from there is usually a rise above normal. The rise in temperature is apparently dependent on the degree of brain contusion, and if it goes as high as 105 degrees the prognosis is very grave. Bagley has reported cases of hyperpyrexia with temperature rapidly rising to 106 and 107 and terminating fatally. At autopsy the lesions were around the vein of Galen and consisted of hemorrhages in and around the corpus callosum, thalamus and internal capsule.

In addition to noting the above general signs, blood pressure, pulse, respiration and temperature, a complete neurological examination, including of course examination of eye-grounds, should be made. Then, to complete the diagnostic study, roentgen ray plates are made *if the condition of the patient warrants*. The use of the roentgen ray should not be over-emphasized. We still believe that the use of clinical methods and judgment is necessary for the successful handling of patients and definite harm may be done by the manipulation incidental to roentgen rays of the skull. As soon as a trained observer has examined the case and determined that roentgen rays will help in diagnosis and classification and that the delay and manipulation will not be harmful, the plates are made. In all traumatic cases Dr. Sherwood Moore insists upon a complete "fracture series." This consists of right and left lateral stereos, anteroposterior and posteroanterior views. The entire department is extremely cooperative in the handling of these patients and they are subjected to a minimal amount of movement and delay.

All of these studies will require at times observation of several hours. Then, with the foregoing facts in mind, cases are classified as follows:

Class 1. Marked brain damage with rapid exhaustion of the medullary centers.

Class 2. Rupture of the middle meningeal artery.

Class 3. Rupture of the arachnoid.

Class 4. Localized brain damage usually associated with depressed fracture.

Class 5. Simple or compound depressed fractures with no neurological signs.

Class 6. Generalized contusions and lacerations of the brain with cerebral edema.

Class 7. Minor types of injuries such as simple linear fractures and severe scalp lacerations.

Class 1. Marked brain damage with rapid exhaustion of the medullary centers. In spite of treatment of any kind, these cases are hopeless from the start, and die within several hours. As a rule, they are in coma, have fixed pupils, stertorous respirations, and pulmonary edema. The following is a typical example of this class.

REPORT OF CASE

S. S., white, male, aged 58, admitted to Barnes Hospital September 7, 1932. Patient came in about fifteen minutes after a fall of twelve feet from a ladder. He had been totally unconscious since the fall. There was a slight bleeding from his right ear; pupils were irregular, large and did not react; arm reflexes were present; lower extremity reflexes were hyperactive with bilateral pyramidal tract signs. Blood pressure on admission was 204/102; pulse was 60; respirations were rather deep and quite variable in

rate, at times as low as 16 and as high as 28 to 30. He remained in deep coma. Blood pressure gradually dropped from 204 on admission to below 100 just before his death. Pulse gradually became more rapid and weak and he died about six hours after admission without regaining consciousness.

Autopsy was done and showed a fracture beginning in the right temporal bone and extending all the way across the base through the petrous portion of the temporal bone. There were numerous contusions and lacerations of the brain with considerable hemorrhage, both subdural and subarachnoid.

Class 2. Rupture of the middle meningeal artery. These cases usually but not always give a history of injury followed by a brief period of unconsciousness. There is then a lucid interval followed by drowsiness and unconsciousness and they may have either a partial or complete hemiparesis on the side of the body opposite the hemorrhage. This hemiparesis usually begins in the face, spreads to the arm and then the leg, and there may or may not be Jacksonian convulsions. In addition, there usually is the classical step-like rise in blood pressure and slow pulse with at times stertorous respirations.

These cases demand immediate subtemporal decompression with ligation of the torn artery and evacuation of the clot. It is very important to remember that there may be a contrecoup fracture, so that the side for operation must be determined by the neurological signs and not by the site of injury.

REPORT OF CASE

O. C., white male, aged 22, admitted to Barnes Hospital July 8, 1917. At the time of admission about 7:30 p. m. the patient was able to give his name and address and discussed the various injuries which he had received in an accident. There was a laceration of the scalp which was dressed, and when iodine was used on this laceration the patient protested rather violently. His blood pressure was 125/75; pulse was 72 and regular; there were no pathological reflexes; there were no other definite neurological signs.

Several hours later the patient was markedly stuporous; blood pressure was 150/70; pulse was slow and irregular, rate 42 to 44; respirations were deep and regular; the deep reflexes in the left leg were absent; pupils were dilated; ophthalmoscopic examination showed very full veins with beginning blurring of the disk margins.

Twelve hours after admission his blood pressure was still around 150, pulse was very slow and he was profoundly unconscious. In the right temporal region there was a large hematoma. In spite of the danger of infection because of superficial skin abrasions a right subtemporal decompression was decided upon. The preoperative diagnosis was progressive hemorrhage, probably middle meningeal. About the only localizing signs were some apparent weakness of his left arm and absent deep reflexes in his left leg.

Under ether anesthesia the usual vertical subtemporal decompression incision was made on the right side; the depressed fracture was exposed and the bone fragment removed. When this fragment was removed a large extradural clot which had compressed the dura was exposed and there was profuse hemorrhage

from the middle meningeal. Bleeding from the torn vessel was controlled as well as possible and a small drain left in. The wound was closed in layers with silk in the usual way.

The following morning the patient looked better, answered questions, but was still semiconscious and very irritable. The wound was dressed and the drain shortened slightly. A small amount of blood escaped. The drain was then completely removed. This was followed by fresh bleeding. This bleeding continued so the incision was reopened and the foramen spinosum was plugged with an orange-wood stick; then the anterior branch of the middle meningeal, which was also bleeding, was tied and the wound was closed.

For several days following the operation, the patient was rather uncooperative but gradually improved and at the time of his discharge was in very good condition. He was completely oriented and there were no residual neurological signs.

Class 3. Rupture of the arachnoid. Clinically, these cases are very similar to middle meningeal hemorrhages except that as a rule they do not have the marked rise in blood pressure. Following an injury which may seem either trivial or fairly serious they usually regain consciousness only to become increasingly drowsy and unconscious again. They may have Jacksonian convulsions or a gradually developing hemiparesis or both. As a result of a tear in the arachnoid, cerebrospinal fluid is pumped into the subdural space. Since there are no facilities for cerebrospinal fluid absorption from the subdural space this collection of fluid acts as the compressing force.

The treatment is immediate subtemporal decompression. When the bone is opened the dura is seen to be very tense and bluish and when nicked cerebrospinal fluid may spurt out for a distance of several feet. The dura is then opened as in any decompression and left open.

REPORT OF CASE

C. S., white, male, aged 16, admitted to Barnes Hospital January 13, 1924. The patient was brought in following a fall while skating. At the time of admission he was unconscious. There had been no convulsions and no vomiting. His blood pressure was 150/55; pulse was not particularly slow. After an hour's stay in the hospital he began to regain consciousness to a certain extent. He answered questions very slowly and recognized his brother. About that time he began to vomit rather frequently.

His reflexes were all present and active; there were no pathological toe signs; his pulse had dropped from 92 to 65; his blood pressure was 165. About two and one half hours after admission his blood pressure was 135/65 and he had again become unconscious. His pupils were dilated; the right leg seemed spastic in comparison to the left; there were no pathological toe reflexes. About this time he had a violent convulsion starting in the left side of the face and rapidly spreading until it became general. This lasted for two or three minutes. At the end of the convulsion he had bilateral ankle clonus.

The patient was immediately taken to the operating room and a right subtemporal decompression was done under local. A small preliminary opening was made

to see if there was any hemorrhage from the middle meningeal. There was no blood between the bone and the dura so the opening in the bone was enlarged. The dura had a peculiar bluish appearance; it looked very tense. When the dura was nicked spinal fluid spurted out for a distance of several feet and the brain beneath seemed fairly well collapsed. The opening in the dura was enlarged. Temporal muscle, fascia, galea and skin were closed in the usual way with silk.

Following the procedure the patient's convalescence was very rapid and uneventful. His headache had cleared up at the end of twenty-four hours when the wound was dressed and the skin sutures removed. The patient was discharged on January 22 with instructions to remain in bed at home for some time. He has been perfectly well since.

Class 4. Localized brain damage due usually to a depressed fracture, either simple or compound, but including an occasional case of traumatic cortical hemorrhage without demonstrable fracture.

The symptomatology in these cases of course depends on the location of the brain injury. They may be conscious, drowsy or comatose. Blood pressure may be gradually rising or remaining constant.

Very careful neurological examination is all important in these cases in order to localize the lesion accurately. There may be weakness or paralysis of motor function with pathological reflexes if the motor cortex is injured. Aphasia has been noted in several cases and in others visual field defects. If the lesion is postcentral or parietal there may be cortical types of sensory disturbance or astereognosis. Jacksonian convulsions are not infrequent and increasing stupor is common.

The treatment is immediate operation, carrying out the following principles: If there is a scalp laceration the edges are trimmed. All particles of foreign material are scrupulously sought and removed. The bone is carefully inspected and depressed fragments removed. If the dura and brain tissue have been traumatized the damaged portion is removed. In the brain this removal is accomplished either by excision with the electric knife or suction. All bleeding is carefully controlled as in any other neurosurgical procedure, using clips, electrocoagulation, or small bits of muscle. Suitable fragments of bone may or may not be replaced and the wound closed in layers with silk in the usual way, *without* drainage. This is essential. We believe drainage to be a great menace in these cases for it is a potential portal of entry for infection.

Later, some of these cases require a bone transplant to repair the defect. We use a modification of the method described by Wagner, chiseling off the outer table and turning it over the defect so that the periosteum is next to the

dura, a method described by the late Dr. Halstead of Johns Hopkins.

REPORT OF CASE

W. S., white, male, aged 42, admitted to Barnes Hospital October 30, 1928. Patient came in immediately after a fall from a scaffold when he struck his head on the concrete. At the time of admission he was unconscious, had stertorous respirations and was slightly cyanotic. His pupils were dilated and did not react; his right arm and leg were spastic; there was a questionable right facial weakness; bilateral Babinski, more marked on the right. Blood pressure was 118/70 on admission and in twenty minutes dropped to 82/60. One hour and fifteen minutes after admission he would react to painful stimuli. His right facial was still present. His pupils were normal and reacted to light. Roentgen rays taken at this time showed multiple fractures throughout the parietal bone with some depression of the upper fragment. There were numerous linear fractures throughout the frontal bone but no depression.

The patient's shock gradually subsided and slightly over two hours after admission he was taken to the operating room. A horseshoe-shaped incision was made over the depressed fracture and numerous depressed fragments, a number of which had been driven through the dura, were exposed. The larger depressed fragments were temporarily removed and the small depression was elevated. The torn place in the dura was enlarged and a ruptured cortical artery was exposed and controlled with silver clips. A ventricle puncture reduced the pressure somewhat so that the dura could be sutured over the entire cortex without tension. The pieces of bone were then replaced and the wound was closed with interrupted sutures of silk for the galea and skin in the usual way.

For several days the patient was mentally confused and uncooperative, but this gradually cleared up. At the time of his discharge on the 22nd of November he was entirely rational and had no residual neurological symptoms.

Class 5. Simple or compound depressed fractures with no neurological symptoms. These cases are also operated upon routinely because of the fact that they are very prone to develop posttraumatic epilepsy. It is necessary at times to delay operation because of a dirty field but as soon as possible the depressed fragments are either elevated or removed.

REPORT OF CASE

A. S., colored, female, aged 27, admitted to Barnes Hospital August 22, 1934. Transferred from City Hospital No. 2. This patient had been in an automobile accident five days before. She had a scalp laceration and roentgen rays of her skull made after the laceration was repaired showed a depressed fracture. There was no loss of consciousness or vomiting. She complained of a sensation of numbness in her right foot.

Over the vertex was a healed laceration. Neurological examination was entirely negative. Objectively, all forms of sensation in the right foot were normal.

Roentgen ray showed at the vertex a depressed fracture slightly more to the right of the midline but extending to both sides.

On August 25, 1934, under avertin and local, the depressed fracture was exposed. It was comminuted

with several fragments. An opening was made just behind the fracture with perforator and burr and enlarged with ronguers. Then since the fragments were small they were removed. The surrounding bone edges were smoothed off, and all bleeding points were carefully controlled. Since the dura was uninjured it was not opened. The galea and skin were closed with silk in the usual way. At the end of operation her condition was excellent.

The skin sutures were removed at the end of twenty-four hours. Her convalescence was entirely normal and at the time of her discharge the numbness in the foot had practically entirely disappeared. She was discharged on September 8, 1934.

Class 6. Generalized contusion and laceration of the brain with cerebral edema. The majority of serious head injury cases fall into this group. They usually come in with varying degrees of unconsciousness. The blood pressure may be normal or somewhat elevated but does not go up rapidly as in a case of frank hemorrhage. Unconsciousness may be of short or long duration, at times lasting for weeks. The neurological signs may be few or many and may vary from time to time. Untreated, these cases develop an increasing cerebral edema and many if not properly treated are lost from the cerebral compression due to the edema. The problem therefore is to combat the edema and reduce the increased intracranial pressure. This may be done in one of three ways, and it is in the treatment of this class of cases that most of the controversies have arisen. The three methods are: (1) By removing tissue fluids by the use of hypertonic solutions, and actually shrinking the edematous brain. (2) By removing cerebrospinal fluid by lumbar or ventricle puncture to give the swollen brain more room. (3) By enlarging the cranial cavity by operation to accommodate for the swelling of the brain.

In this clinic the second method is so rarely used that we may say never. Lumbar puncture in head injuries was first introduced by Cushing as a diagnostic procedure years ago. His idea was that the presence or absence of blood in the spinal fluid was a diagnostic aid. We feel that the procedure is definitely dangerous and from the standpoint of diagnosis or prognosis is of little value. The method of treatment of these cases is determined on clinical (and in some cases roentgen ray) evidence and is not influenced by the state of the spinal fluid. As to the danger, we have seen cases in which death followed spinal puncture due to the compression of the medulla by the cerebellar tonsils which had sunk into the foramen magnum; and it is very important to remember that death from this cause need not be immediate but may occur several hours after the puncture. In this clinic therefore we are opposed to the use of lumbar puncture.

The first method of removing tissue fluids is the method of choice. Weed and McKibben, Foley and Putnam, Dowman, Belcher, and other observers have reported that intravenous injections of hypertonic salt solution or hypertonic glucose or magnesium sulphate, by mouth or by rectum, are the agents par excellence possessing the property of dehydration. The method has been in use in this clinic since 1920 and 50 per cent glucose intravenously and magnesium sulphate by rectum are the chosen agents. Soon after admission the patient is given 50 cc. of 50 per cent glucose intravenously and subsequently from 90 to 120 cc. of 50 per cent magnesium sulphate as a retention enema every three to four hours. The enema must be retained, mechanically if necessary, for at least 10 to 15 minutes. The dose is proportionately reduced in children. In addition, the fluid intake is usually limited to 1200 to 1500 cc. in twenty-four hours. If extreme restlessness is not controlled completely by dehydration, sodium luminal, bromides and chloral hydrate may be used. Morphine we believe to be dangerous and contraindicated. As the patients improve the interval for the magnesium sulphate is lengthened and usually at the end of a week it is no longer necessary.

As to the third method, enlarging the cranial cavity, it is very seldom necessary since the method of dehydration has been used. We do not condemn it but merely no longer find it required.

Another very important point in the treatment of these cases is that they be kept in bed for at least three weeks. This we believe to be very important in the prevention of posttraumatic headaches and other symptoms.

REPORT OF CASE

W. B., white, male, aged 19, admitted to Barnes Hospital August 5, 1934. About six hours before admission the patient was playing baseball and had a head-on collision with another player. He was dazed for a few moments but finished the game. On arriving at home after the game he seemed mentally confused and did not remember what had happened. After eating a little supper he complained of headache and vomited. He then became definitely confused and on admission was violently restless, and completely disorientated with the exception that he very occasionally seemed to recognize his father.

His pupils were equal and reacted to light; the eye-grounds were within normal limits; there was no cranial nerve involvement; abdominal reflexes were absent on both sides; knee jerks and ankle jerks were present; there was an unsustained ankle clonus and a Babinski on the left; blood pressure was 120; pulse was not slow. Because of his mental condition it was out of the question to attempt roentgen rays.

The patient was immediately put on a hypertonic régime. He was given 50 cc. of glucose intravenously and 120 cc. of magnesium sulphate as a retention

enema every four hours. Within 30 to 40 minutes after the retention enema he quieted down and was sleeping apparently normally. The morning after admission he was perfectly conscious, rational, well orientated and cooperative in every respect. Roentgen rays made the following morning showed a fracture in the squamous portion of the temporal bone on the left side. He was discharged from the hospital on the fifth day against advice with instructions that he was to be kept in bed for three weeks.

The patient has reported for observation on several occasions since his discharge and is perfectly normal in every respect.

Class 7. Into this class we place the minor types of injuries, such as simple linear fractures, severe scalp lacerations and cases which show neither of the above but give a history of definite injury with a short period of disturbance of consciousness. They soon become normal in every respect both subjectively and objectively.

In the linear fractures the only treatment necessary is rest in bed for two to three weeks depending on the severity of the injury, but this is very important for these cases frequently have a prolonged period of severe headache if this rule is not adhered to.

In the case of scalp lacerations, careful debridement and repair with interrupted sutures of silk for the galea and for the skin are done. The galea is so well approximated that the skin sutures are left in only twenty-four hours and in this way superficial stitch infections are avoided.

REPORT OF CASE

B. P., female, colored, aged 28, admitted to Barnes Hospital January 25, 1934, as an emergency. About seven hours before admission the patient had been in an auto accident and received a rather severe blow on the forehead but she was not unconscious. She was dazed for several minutes because she did not remember the details of the accident and things that occurred for several minutes after the accident were very vague.

At the time of admission she was fully conscious, rational and well orientated. Her blood pressure and pulse were normal; temperature was not elevated. Her physical and neurological examinations were entirely negative. Roentgen ray revealed a fracture of the squamous portion of the temporal bone on the right side with no depression.

No treatment was instituted with the exception of rest in bed and the patient was discharged at the end of approximately two weeks in the hospital with instructions to stay in bed another week.

Based on the foregoing classification, a statistical review of cases is presented to justify our views. A composite table embracing the cases included in the study brings out many interesting facts.

The total number of operative head injuries is ninety-six. Of these ninety-six cases thirty-two died, making a gross mortality of $33\frac{1}{3}$ per cent. However, included in this total num-

| 96 Operative Cases | | | | 96 Nonoperative Cases | | | |
|--------------------|-------------------------|--------------------------|-------------|-----------------------|-------------------------|--------------------------|-------------|
| Class | Num- ber of Cases | Num- ber of Deaths | Per Cent | Class | Num- ber of Cases | Num- ber of Deaths | Per Cent |
| 1 | 16 | 16 | 100 | 1 | 7 | 7 | 100 |
| 2 | 4 | 0 | 0 | 2 | 1 | 1 | 100 |
| 3 | 8 | 0 | 0 | 3 | 0 | 0 | |
| 4 | 54 | 11 | 20.3 | 4 | 4 | 4 | 100 |
| 5 | 3 | 0 | 0 | 5 | 0 | 0 | |
| 6 | 11 | 5 | 45.4* | 6 | 41 | 0 | 0 |
| 7 | 0 | | | 7 | 43 | 0 | 0 |
| Total | 96 | 32 | 33.3 | Total | 96 | 12 | 12.5 |

| | |
|--|------|
| Operative cases exclusive of Class 1..... | 80 |
| Mortality per cent..... | 20 |
| Nonoperative cases exclusive of Class 1..... | 89 |
| Mortality per cent..... | 5.61 |
| *Laryngeal diphtheria | 1 |
| Abscess one year later..... | 1 |
| (This was an operative wound infection) | |
| Pneumonia | 1 |
| Accompanying chest injury..... | 1 |
| Infant diarrhea | 1 |

ber are sixteen cases classified as Class 1. These cases were operated upon in spite of the fact that the outlook was apparently hopeless from the beginning. Excluding then these cases we have eighty operative cases with sixteen deaths making a mortality rate, exclusive of Class 1, of 20 per cent.

The causes of death in these cases were as follows:

| | |
|--|---|
| Meningitis | 3 |
| Pneumonia | 4 |
| Brain abscess late | 1 |
| Infant diarrhea | 1 |
| Thrombosis superior longitudinal sinus.. | 1 |
| Other injuries | 1 |
| Laryngeal diphtheria | 1 |
| Shock or hemorrhage (all self-inflicted gunshot wounds) | 4 |

Reviewing now the operative cases according to classification many interesting facts are brought out.

The sixteen cases of Class 1 of course resulted in sixteen deaths, with a mortality of 100 per cent.

Class 2 (middle meningeal hemorrhage) is shown to be a much rarer type of head injury than the average textbook would lead one to believe. There are only four of these cases with no deaths.

Class 3, which includes those cases of rupture of the arachnoid and escape of cerebrospinal fluid into subdural space, is relatively twice as frequent as Class 2, and there are eight of these cases with no deaths.

Class 4, which includes localized brain damage, either from depressed fracture or cortical hemorrhage, is the most frequent type of head injury requiring operation. There are fifty-four cases with eleven deaths giving a mortality rate of 20.3 per cent. The majority of these deaths was due to infection which came as a result of the compound fracture; there were four deaths from self-inflicted gunshot wounds.

Of the simple depressed fractures without neurological symptoms (Class 5) there were three cases with no deaths.

Class 6 is of particular interest. There were eleven cases treated by subtemporal decompression, the great majority of these before the advent of the hypertonic régime. In this series there were five deaths making a mortality rate of 45 per cent. The causes of death are shown in the table. It is true that by no means all of them can be attributed to anesthesia or operation, but the results are extremely interesting when compared with Class 6, nonoperative.

Of the nonoperative cases, in order to make these statistics balance, ninety-six cases were selected at random and over a long period of years. Of these ninety-six cases there was a total of twelve deaths, giving a mortality rate of 12.5 per cent. However, included in this classification are seven cases of Class 1 with seven deaths. Class 1 is then removed from this classification, and we have a total of five deaths with a gross mortality rate of 5.61 per cent. All these five deaths come under classifications other than Class 6, due either to a mistake in diagnosis or to delayed hospital admission.

Of middle meningeal hemorrhage, there was one case with one death. This patient, who was forty-six years of age, walked in following an injury and shortly after became deeply unconscious. His blood pressure gradually rose, his pulse became slow and he developed an ankle clonus on the right. Examination of his urine showed a large amount of sugar and albumin, so in order to make the diagnosis of intracranial hemorrhage more certain before operating a lumbar puncture was resorted to in the operating room. While waiting for the report on the lumbar puncture the patient died before any operative procedure could be carried out.

Autopsy was done and showed a middle meningeal hemorrhage with a large extradural clot.

In Class 4 are four cases with four deaths. The details of these cases are as follows:

1. A white male, aged 29, was admitted twelve hours after injury. He was profoundly unconscious and had a right facial paresis. The unconsciousness cleared up slightly after admission but he was completely disoriented for a long time. He was a very severe diabetic and although roentgen ray showed a depressed fracture surgery was not resorted to because of the complicating diabetes. Lumbar punctures were done on several occasions and the diabetes was treated in the usual manner with insulin and diet. Although this patient was discharged from the hospital he died shortly after dis-

charge. Autopsy showed an abscess of the right frontal lobe beneath the depressed fracture.

2. A white male, aged 46, was admitted nine days after an injury because of increasing headaches and drowsiness which had progressed to a stage of stupor. The only neurological sign was a Hoffman on the left. The patient was a chronic alcoholic and his general physical condition was poor. Two lumbar punctures were done during his hospital stay. He gradually became more deeply unconscious and died. Autopsy showed a large clot over his right parietal lobe beneath the fracture with numerous small hemorrhages scattered throughout the brain.

3. A white female, aged 45, was admitted twenty-one days after an accident, completely disorientated, with an Oppenheim on the right, ankle clonus on the left and choked disks. She had pneumonia on admission so operation was out of the question. She was given sedatives for her delirium and stimulants. She died in spite of all treatment. Autopsy showed no fracture but marked laceration of the parietal cortex with hemorrhages over this hemisphere and some hemorrhage around the base. In addition to pneumonia she also had a well developed bronchiectasis.

4. A white male, aged 45, was admitted immediately after injury. He was unconscious and as unconsciousness became somewhat less he was completely disorientated. There were no pathological reflexes. He was a chronic alcoholic and his general condition was rather poor. He was kept in bed. Lumbar punctures were done. On the eighth hospital day he died suddenly. Autopsy showed a large clot over the surface of the left frontal lobe resulting from a ruptured cortical vessel.

In Class 6 there are forty-one cases with no deaths as compared to eleven cases with five deaths under the operative régime.

There are forty-three cases in Class 7 with no deaths.

SUMMARY

Recent head injuries are classified in this clinic as follows:

Class 1. Marked brain damage with rapid exhaustion of the medullary centers.

Class 2. Rupture of the middle meningeal artery.

Class 3. Rupture of the arachnoid.

Class 4. Localized brain damage usually associated with depressed fracture.

Class 5. Simple or compound depressed fractures with no neurological signs.

Class 6. Generalized contusions and lacerations of the brain with cerebral edema.

Class 7. Minor types of injuries such as simple linear fractures and severe scalp lacerations.

The majority of cases fall into Class 6 or Class 7 and are not operated upon.

The results in Class 6 are much better under hypertonic régime than surgical treatment.

Lumbar puncture is unnecessary and dangerous in cases of recent head injury.

There are definite indications for surgery and when these indications are not followed the results are uniformly bad.

University Club Building.

BIBLIOGRAPHY

- Bagley, Charles: Extensive Hemorrhagic Extravasation From the Venous System of Galen, With a Clinical Syndrome, *Arch. Surg.* **7**:237, 1923.
- Dowman, C. E.: Management of Head Injuries With Real or Potential Brain Damage, *J. A. M. A.* **79**:2212, 1922.
- Fay, Temple: Comparative Value of Magnesium Sulphate and Sodium Chloride for Relief of Intracranial Pressure, *J. A. M. A.* **82**:766, 1924.
- Foley and Putnam: The Effect of Salt Ingestion on Cerebro-Spinal Fluid Pressure and Brain Volume, *Am. J. Physiol.* **53**:464, 1920.
- Naffziger, Howard: Subdural Fluid Accumulation Following Head Injuries, *J. A. M. A.* **82**:1751, 1924.
- Sachs, Ernest: Fractures of Skull, *South. M. J.* **15**:10, 1922.
- Sachs, Ernest: Fractures of Skull, *Internat. J. Med. & Surg.* (May) 1927.
- Sachs, Ernest: Head Injuries, *Internat. J. Med. & Surg.* (December) 1933.
- Sachs, Ernest, and Belcher, Geo. W.: Use of Saturated Salt Solution Intravenously During Intracranial Operations, *J. A. M. A.* **75**:667, 1920.
- Weed and McKibben: Pressure Changes in the Cerebro-Spinal Fluid Following Intravenous Injection of Solutions of Various Concentrations, *Am. J. Physiol.* **48**:512, 1919.

A GROUP OF SYMPTOMS FREQUENTLY INVOLVED IN GENERAL DIAGNOSIS, TYPICAL OF SINUS AND EAR DISEASE AND OF MANDIBULAR JOINT PATHOLOGY

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The group of symptoms detailed below are common to a large number of patients who otherwise have diseases of major importance. The frequency of ill-fitted edentulous mouths among the middle aged, and malocclusion from all other causes in others, make the factor of mandibular joint pathology confuse the picture in diseases of contiguous structures as well as those of systemic nature. The attention of the patient is rarely drawn to the joint or mouth condition as a cause of headache or ear trouble; interest usually is taken rather in eyes, sinuses, circulatory system, nervous system and the gastro-intestinal tract as traditional explanation.

In a previous report¹ eleven cases in which follow-up was possible were given to demonstrate these mandibular joint effects from overbite and malocclusion. They were selected in an eight year period. In the suc-

ceeding five months twenty more have been observed, many of which had been seen before on several occasions as true sinus cases. The conspicuous appearance of infection of the sinuses, hypertension and arterial change, eye findings, etc., may seem to wholly account for headache and dizziness in many cases. Malocclusion and mandibular joint disturbance are therefore easily overlooked as etiologic factors. Each of these symptoms may be ascribed to some evident disturbance in the function of the mandibular joint, derangement of its anatomic structure, ligaments or muscular attachments. The ear symptoms depend upon actual involvement of the eustachian tube and tympanic structures. The "sinus" symptoms are more apparent than real. The actual source of this group of complaints was confirmed by the marked improvement which followed correction of the malocclusion, renewal of molar support to take pressure off the condyle and establishment of proper articulation of the condyle within the fossa.

The ear symptoms observed were: Impaired hearing continuously or with intervals of improvement; stopping of or "stuffy" sensation in ears marked about meal time; tinnitus, usually "low buzz" in type, less often a snapping noise while chewing; pain, dull type within and about ears; dizziness, mild; again, attacks of prostrating severity definitely relieved by inflation of eustachian tubes.

Alleged "sinus" symptoms: Headache, severe and constant, localized to vertex and occiput and behind the ears, the typical site of posterior sinus pain, but increasing toward the end of the day (atypical sinus history and suggestive of eye headache); burning sensation in throat, tongue and side of nose.

The diagnosis of this condition is established by: (1) The lack of molar teeth or badly fitting dental plates permitting overbite; (2) mild catarrhal deafness improved at once by inflation of eustachian tubes; (3) dizzy spells relieved by inflation of tubes; (4) tenderness to palpation of mandibular joints; (5) marked comfort to patient from interposing a flat object between the jaws; (6) the presence of the typical headache after sinus or eye involvement has been corrected; presence of the typical headache when sinuses or eyes are found to be negative.

REPORT OF CASES

Case 2. Mrs. A. K., aged 62. For many years this patient has had a "raw" feeling in the right side of

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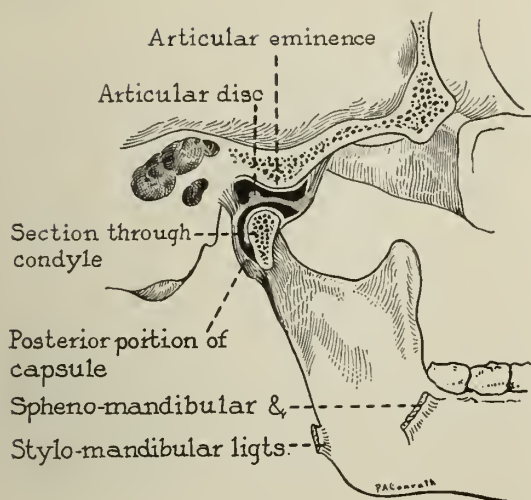


Fig. 1. The temporomandibular articulation. Schematic drawing to show position assumed by articular structures when full molar support is afforded (mesial aspect). No pressure is exerted on the meniscus by the condyle. (From the *Annals of Otol. Rhinol. & Laryngol.* March, 1934.)

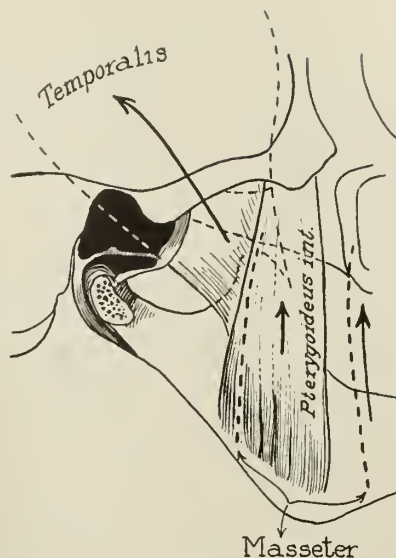


Fig. 2. Variety of movements increased in the pathological temporomandibular joint. With molar support gone, condyle is brought upward against meniscus, forward against articular eminence, or backward against tympanic plate. (From the *Annals of Otol. Rhinol. & Laryngol.* March, 1934.)

the throat; has headache daily over the right eye, behind the right ear and into occiput. There is a burning sensation at the end of the day in the right side of the nose and tongue which extends at times to the right ear. No deafness or dizzy spells.

Examination, July 24, 1928: The nasal spaces are clear of infection. The lower turbinates are enlarged but not occluding. In the nasopharynx, the right eustachian tube is set forward by a smooth mass, mucosa not broken on surface, and about 0.5 cm. in diameter, soft in texture; pharynx otherwise normal; upper and lower molars absent on right.

Hearing normal, bone conduction slightly prolonged. Biopsy of the mass was suggested and refused.

Diagnosis: Sphenoiditis, chronic, right; pharyngitis, chronic, secondary; nasopharyngeal tumor, right (?).

October 2, 1933. The patient returned after five years' absence. Biopsy was made and sections reported as chronic inflammation, lymphadenoid tissue. Palpation of the mass showed it still soft, not increased in size.

All molars, upper and lower, missing on the right. The right temporomandibular joint is quite tender to firm pressure and bite closes with slipping of jaw to left and wrenching of right joint. Observed through nasopharyngoscope, the soft mass in the nasopharynx is seen to bulge markedly on closure of bite.

The patient was sent to her dentist and upper and lower denture was fitted in the molar spaces on the right. The last report from her was three weeks later; there was marked relief from the headache and burning sensation.

Case 5. Mrs. J. S. M., aged 55. This remarkable case was of a woman who has been an invalid with paralysis agitans symptoms for four years. The tremor was confined to the hands; weakness and gait difficulty prevented any effort at walking and attacks of mild dizziness made the patient refuse to sit up in bed. The hearing was impaired with sensation of "stopped ears." There was a dull temporal and occipital headache daily. The presence of occasional infection about the posterior sinuses seemed to prove this the source of the headache and, in view of the tendency to become worse, a resection of the posterior

sinuses was considered. The gravity of this procedure brought in consulting advice.

Examination, November 15, 1932. The nasal spaces were entirely normal except for some hyperplasia about the posterior sinuses. The pharynx was negative. Ear drums perfect, slightly dull and retracted. Very flat and poorly fitting plates, twenty-two years old, permitted an extensive overbite of the jaw. Palpation of the mandibular joint showed marked tenderness on both sides.

Hearing distance for spoken voice was thirty feet, both ears, whispered voice not heard; C4 and C gross forks not heard, middle C heard well. Weber not lateralized. Bone conduction prolonged to sixty seconds. Rinne positive. Eustachian tubes were tightly stopped when inflation was attempted.

New dental plates were fitted and the eustachian tubes inflated weekly for one month. The dizzy spells disappeared at once and the headache was completely relieved by the end of the month's period. This report is one year later; the paralysis agitans symptoms have gradually increased. The patient sits up in bed or wheel chair without dizziness, there is no further headache and the hearing is improved.

Case 11. Mr. E. A. F., aged 73. This patient has a negative past history and is still in perfect health. He recently had a thorough routine physical examination because of dizzy spells which were increasing in frequency and severity. All findings being essentially negative, he was referred for the question of toxic labyrinthitis.

He stated that the attacks were brief, severe enough only to cause him occasionally to reach for support. There has been some stopping of ears and impaired hearing; tinnitus, a low crackle only when he yawns widely to open ears.

Examination, November 15, 1933: The nasal spaces are free of infection, structures good except for broad septal spur on the left. Pharynx negative. Ear drums normal.

Fork tests show reduction for C4 and C gross, hearing distance reduced to twenty feet for both CV and WV, both ears. No spontaneous nystagmus.

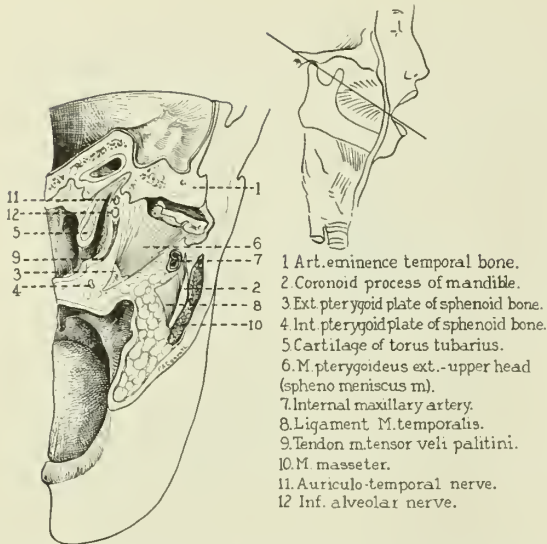
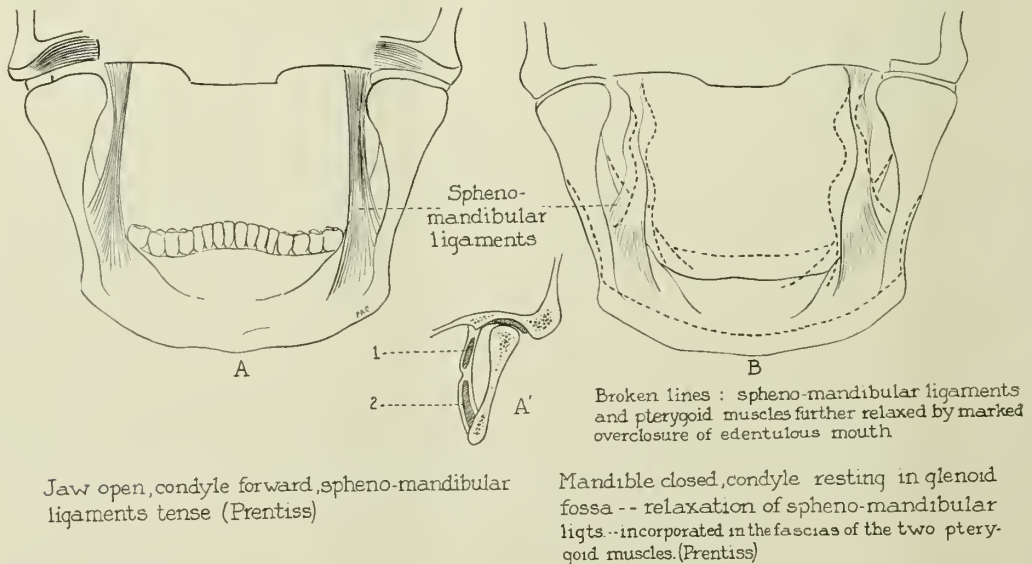


Fig. 3. This section was made in a cadaver specimen with mouth open and the condyle well forward on the articular eminence of the temporal bone. In this position the sphenomeniscus muscle is taut. When the jaw is brought upward, as in a marked overclosure, this muscle and associated structures are seen to relax and the bulging tissues compress the membranous part of the eustachian tube. (From the Annals of Otol. Rhinol. & Laryngol. March, 1934.)

Diagnosis: Chronic catarrhal otitis media, bilateral, mild.

There is a marked overbite of his badly fitting plates, the jaw instantly feeling more comfortable when resting the molar teeth on three tongue depressors equal to about 1 cm. in thickness.



A'—Coronal section through ramus and the two pterygoids to show sphenomandibular ligament a part of general fascia. (1) Ext. pterygoid. (2) Int. pterygoid. (Prentiss)

Fig. 4. Sketch of a study by Prentiss showing the manner of tensing the sphenomandibular ligaments and their behavior in a closed bite. Movement of the pterygoid muscles is uniform with the ligaments, being controlled by them. (From the Annals of Otol. Rhinol. & Laryngol. March, 1934.)

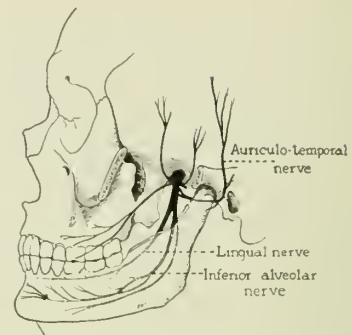


Fig. 5. Sketch showing the distribution of the mandibular nerve and the course of the auriculotemporal nerve. (Henle.) (From the Annals of Otol. Rhinol. & Laryngol. March, 1934.)

Inflation of the eustachian tubes entirely relieved the dizzy attacks and he proceeded to replace the old plates. All his symptoms are improved with the new jaw position effective a few days.

Case 29. Mrs. W. F., aged 46. Two years before examination the patient began to have an itching in the left ear with watery discharge. The attacks had become more severe and coincided with a violent headache which localized over the left eye, behind the left ear and into the left jaw. The pain was described as sharp at first, subsiding to a dull throb lasting several days. There were buzzing noises in the left ear during which she thought the hearing to be better. Occasional dizzy spells, not constant in type or time of day. Repeated examination by general physician was negative.

Examination, April 10, 1926: Nasal structures good, free of infection and no evidence of any chronic

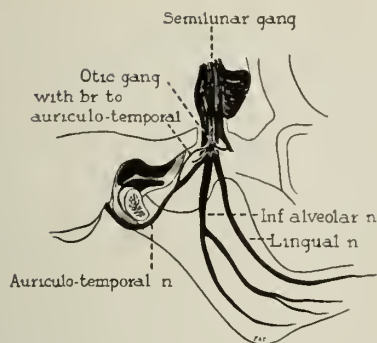


Fig. 6. Diagram of mesial view of mandibular nerve showing auriculotemporal nerve and its connections with the otic ganglion. (After Spalteholz.) (From the Annals of Otol. Rhinol. & Laryngol. March, 1934.)

involvement. There is a small pad of lymphoid tissue in the midline of nasopharynx; no mass seen. No palpable cervical glands. Fork tests show normal hearing on the right, all tones heard poorly on left, with CV and WV reduced to thirty feet on left only. Diagnosis: Otitis externa, left (herpes?); Sluder's syndrome, lower half; headache, left; nasopharyngeal tumor, left (?); chronic catarrhal otitis media, left, mild.

Inflation of the eustachian tubes relieved the dizziness and reduced the number and severity of attacks. Cocainizing of both nasal ganglia relieved the attacks of pain usually for a six months period.

On April 24, 1934, the patient reported during the first day of her headache which was severe. The description was similar in every detail except that during the last year the pain is burning and radiates down the wall of the throat on both sides; it can be started at times by vigorous chewing of tough meat; and it has been followed recently by a collection of "canker sores" within the left cheek two or three days after the onset of pain.

Examination on the above date showed a very tender mandibular joint on the left. The jaw slips from side to side on opening or closing. The upper dental plate fits fairly well but the lower does not match and falls from the mouth when the jaw is opened widely. She was classed as a possible case of irritative head-

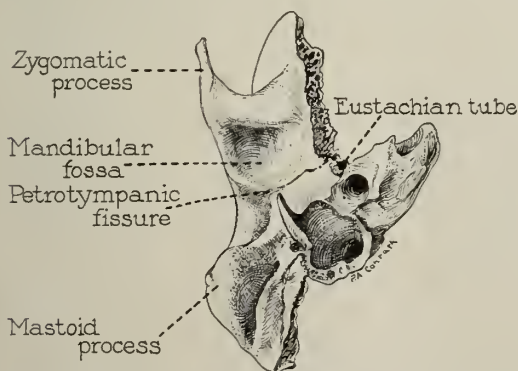


Fig. 7. Lower aspect of temporal bone showing the petrotympanic fissure quite high, within the depression of the mandibular fossa. In such relation as this, the chorda tympani nerve emerging at the mesial end of the petrotympanic fissure is subject to irritation from the movements of the condyle in a pathological mandibular joint. (Drawn from a specimen in the anatomical collection of Prof. R. J. Terry, Washington University School of Medicine.) (From the Annals of Otol. Rhinol. & Laryngol. March, 1934.)

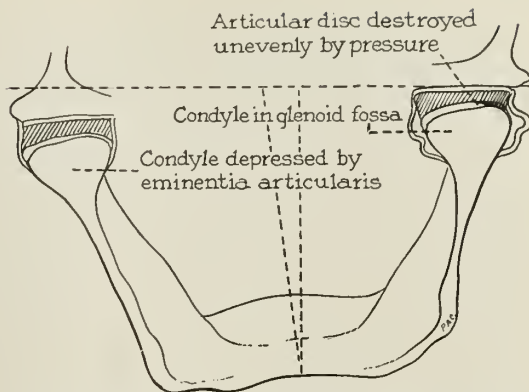


Fig. 8. Asymmetric position of condyles due to uneven support of molars or lack of support on one side. (Prentiss.) (From the Annals of Otol. Rhinol. & Laryngol. March, 1934.)

ache from mandibular joint disturbance, with herpes of the left external canal and buccal mucosa. Without treating the nose she was sent to a prosthetic dentist who widened the bite and vertical jaw dimension with temporary application of dental wax.

Report after four days showed that the headache lasted only one day and that the patient has far greater comfort with the new support of the jaw.

This case was chosen from the second group being studied because it embraces all ear and pain symptoms in addition to herpes of the external canal and buccal mucosa.

Monson² in 1920 emphasized the occurrence of deafness from encroachment upon the external auditory canals by the backward thrust of the mandible. This was in connection with a classic series of reports on occlusion. Wright³ and later Decker⁴ reported cases demonstrating compression of the cartilaginous canal by habitual retraction of the condyles of the mandible. These authors ascribe deafness in those individuals to (1) compression of external canals to point of closure, (2) trauma to tympanic structures and irritation from the continued click and pound as the condyles

- A Relaxed ligament of mandibular joint permits play of condyle downward
- B Remaining tooth support holds, or lower teeth shift laterally during closure.
- C Condyle on edentulous side shifts mesially, irritating auriculo-temporal and chorda tympani nerves.

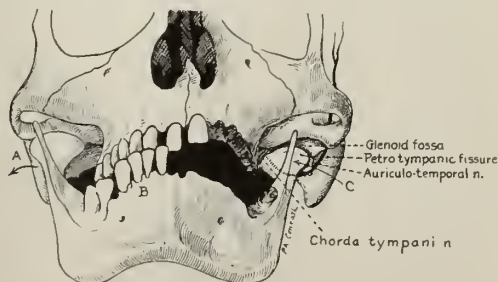


Fig 9—Effect on mandibular joint of lack of molar support on one side

slip backward with each closure of the mouth. Deduction from (1) has been repeatedly observed and confirmed. If (2) were accepted, it would be on the basis of some type of concussion of labyrinthine structure or injury to the eighth nerve in which case the recovery of hearing after correcting the joint function would be very slow. Their cases, as well as most of the present series, promptly improved in hearing within a few days or weeks after restoration of proper occlusion. The temporary nature of such deafness seems clear. The symptoms of dizziness in cases 1, 5, 6, 8, 11 and 29¹ temporarily disappeared with the first inflation of the eustachian tubes and hearing distance was improved during the test. The role of compression of the eustachian tubes and a resultant conduction deafness was quite evident; the association of dizziness with improper regulation of the intratympanic pressure was repeatedly demonstrated. Cases 5, 6 and 11 habitually practiced opening the mouth as in a yawn to relieve dizziness and coincidentally "stopped" feeling in the ears.

Looking to anatomic reasons for such a pressure effect we find a definite basis for compression of the tubes. A section (fig. 3) made through the articular eminence close to the glenoid fossa passes through the attachment of the sphenomeniscus muscle to the articular disk and through the lumen of the eustachian tube; it embraces all soft structures adjacent to the tube. With the joint in normal position the external pterygoid muscle is taut (fig. 4-A) and the tensor veli palatini muscle borders the tube anteriorly on an almost straight line (fig. 3-9). Between these lie only connective and adipose tissue and, posteriorly close to the tube, are the auriculotemporal nerve and the inferior alveolar nerve. If the jaw is brought upward into a position of marked overbite, the upper head of the external pterygoid muscle (called the sphenomeniscus muscle by Prentiss⁶) is relaxed and a bundle of soft tissue piles against the tube (fig. 3). The tensor veli palatini muscle appears loose preventing its function in tightening the soft palate and opening the eustachian tube during deglutition. Especially during the act of swallowing, when the tensor palatini muscle usually opens the eustachian tubes, the compressing effect of the tissues on the tube from the overbite is present and prevents it.

The very looseness of the capsule of the mandibular joint and its restraining liga-

ments now works to further exaggerate the pushing of tissues toward the tube (fig. 4-B). With each over-acting closure of the mandible by the masseters, the internal pterygoid and temporal muscles, the condyle is shoved upward against or through the atrophic or perforated meniscus or it moves backward to the tympanic plate and pushes mesially on one side or the other through the loose capsule. This happens countless times with each meal as the patient retrudes the jaw to occlude his poorly fitting plates.

Prentiss⁵ observed with wide variations of thinning of the meniscus that perforations were produced on various areas. Its location would depend upon the angle at which the condyle was forced against the meniscus; such an uneven pressure follows the unilateral loss of molar support (fig. 8).

The overbite with atrophy of the joint structure occurs at once if the dental plates are poorly fitted and allow it. It develops slowly if the same plates are worn for many years and shrinkage of the bone in the dental ridges is marked.

Harris,⁷ in describing the applied anatomy of the mandibular joint, mentioned the proximity of the auriculotemporal nerve and its frequent injury from loose movement of the condyle.

Goodfriend⁸ recently gave exhaustive reports on the symptomatology and treatment of abnormalities of mandibular articulation with emphasis on the mechanics of repositioning the mandible and establishing the proper dental occlusion. His analysis of ninety-one cases shows that only 12 per cent of the group are aware of the joint symptoms and that the majority of them seek treatment for the associated reflex symptoms. Deafness leads the list of primary complaints and then, in order of frequency, come bite anomalies, speech defects, snapping of joints, tinnitus and "eczema" of ear canals, facial deformities, pyorrhea, malocclusions and lastly, vertigo. Audiometric examinations were made in an otolaryngologic clinic and these showed 13.3 per cent loss of hearing for the abnormal group, but the type of deafness was not reported.

This important investigation demonstrates the following points: (a) That the patient mentions deafness most frequently as a primary complaint, vertigo last, and headache not at all. (This means that the patient does not associate the two symptoms and that the vertigo is mild and recurrent over a long onset period. In my first group cases 6 and 11 were referred by internists

suspecting toxic labyrinthitis.) (b) That treatment is sought by the majority of patients for headache and referred pains, the result rather than the unsuspected mandibular joint disease.

The anatomic explanation of pain in connection with disturbed joint function is fairly simple, if recognized: (1) Deep erosion of the bone (fig. 2) of the glenoid cavity leaves only a thin plate between the condyles and the dura—practically nil (Prentiss⁵). Each closure of the jaw impacts this evacuated area with the condyle which thus rocks in the glenoid fossa, barely separated by the remaining thin bone from the dura and its rich nerve supply. (2) With some of the chewing movements and closures of the jaw the condyle exerts pressure on or near the auriculotemporal nerve which passes intimate to the mesial side of the capsule between the condyle and the tympanic plate to distribute over the temporal region (fig. 5). (3) Further, in the type of pathologic joint in which the condyle snaps backward over the articular disk, impacting and eroding the tympanic plate, the chorda tympani nerve passes this spot through the iter chordae anterior at the medial end of the glaserian (petrotympanic) fissure (fig. 7). It is therefore quite evident that dull vertex pain from this source may be of dural origin, that pain over the temporal region originates in irritation of the auriculotemporal nerve, and that the pains or sensory disturbance, such as burning (case 29) referred to the side of the tongue, or pharynx may be attributed to pressure on the chorda tympani nerve.

SUMMARY

Headache and ear symptoms directly dependent upon disturbed function of the mandibular joint frequently occur in cases showing sufficient pathology about the sinuses to otherwise account for them. There are so many medical, rhinologic and ophthalmologic reasons for headache distributed about the ears, vertex and occiput, and there are so many nasal changes to account for eustachian tube obstruction that evulsion of the condyle of the mandible from overbite is not considered.

Hearing tests show a mild type of catarrhal otitis with eustachian tube involvement, usually simple obstruction. This is due to pressure on its anterior membranous wall, transmitted through soft tissue from the relaxation of pterygoid muscles and associated sphenomandibular ligaments during overbite.

The promptness with which the ears improve seems to controvert the idea that the ear condition is due to trauma or concussion of the labyrinth or tympanic structures from the condyle of the mandible. Cases of shock to the labyrinth from a blow on the chin are not within the scope of this paper.

Attacks of dizziness in these cases are obviously due to changes in intratympanic pressure affecting the labyrinth. The effect is transient and recurrent, relieved by inflation of the eustachian tube and not the picture seen in toxic labyrinthitis.

The areas involved in the headache cases are typical of headache of posterior sinus origin and are easily taken for such. Persistence of the headache after indicated sinus surgery is sometimes due to mandibular joint pathology.

The symptoms arise as a result of overaction of the joint at first and later the regional effect of a loose, pathologic joint is added produced by absorption of the meniscus, condyles and surrounding bone.

Analysis of thirty-one cases indicates that ear symptoms predominate in edentulous mouths whose symptoms develop slowly; this is the pressure effect on eustachian tubes as explained in figure 3; and that pain symptoms, with or without herpes of the external canal and buccal mucosa, predominate in the cases of natural malocclusion or malocclusion from loss of molar support on one side only (fig. 9).

The prognosis in a given case depends on these factors: (a) The accuracy with which refitted dentures relieve abnormal pressure on the joint, the increase of vertical dimension keeping the moving condyle out of range of dura, chorda tympani and auriculotemporal nerves; (b) the extent of injury to the tube and to the condyle, the meniscus and the joint capsule.

Anatomic reasons are advanced to account for abnormal conditions of the eustachian tube and for the distribution of pain toward the vertex, occiput, pharynx and tongue; further proof as to cause and effect is afforded by addition of twenty more cases to the first group.—In all these cases some or all of the various symptoms have been relieved by repositioning the jaw.

It is barely possible that mandibular joint pathology may be an etiologic factor in glossopharyngeal neuralgia, the association of chorda tympani and auriculotemporal nerves with the ninth occurring via sensory connections to the otic ganglion.

Observation of herpes in case 29, which

occurred constantly at time of pain attacks, suggested this close association. Review of previous cases shows eight (25 per cent) to present the herpes symptom. The herpes is found to be unilateral, distributed upon mucosa of tongue, hard palate and cheek, and external canal of the ear. Herpes disappears when the jaw is repositioned and headache improved, and may be included definitely as another symptom in the group associated with disturbed function of the temporomandibular joint.

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BIBLIOGRAPHY

1. Costen, J. B.: A Syndrome of Ear and Sinus Symptoms Dependent Upon Disturbed Function of the Temporomandibular Joint, *Ann. Otol. Rhin. Laryng.* **43**:1-15, 1934.
2. Monson, G. S.: Occlusion of the Teeth, *J. A. D. A.* **7**:399-413, 1920.
3. Wright, W. H.: Deafness as Influenced by Malposition of the Jaws, *J. A. D. A.* **7**:979-992, 1920.
4. Decker, J. C.: Traumatic Deafness as a Result of Retraction of the Condyles of the Mandible, *Ann. Otol. Rhin. Laryng.* **34**:519-27, 1925.
5. Prentiss, H. J.: A Preliminary Report Upon the Temporomandibular Articulation in the Human Type, *Dental Cosmos* **60**:505-14, 1918.
6. Prentiss, H. J.: Regional Anatomy. Emphasizing Mandibular Movements With Specific Reference to Full Denture Construction, *J. A. D. A.*, **10**:1085-99, 1923.
7. Harris, H. L.: Anatomy of the Temporo-mandibular Articulation and Adjacent Structures, *J. A. D. A.*, April, 1932, pp. 584-90.
8. Goodfriend, D. J.: Symptomatology and Treatment of Abnormalities of the Mandibular Articulation, *Dental Cosmos* **75**:844-52, 1933; *ibid.* **75**:947-57, 1933; *ibid.* **75**:1106-11, 1933.

PAIN OF EMOTIONAL ORIGIN

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Not infrequently the physician comes upon patients who have complaints of pain which simulates clinical entities but which does not respond to treatment in the expected manner and the exasperated practitioner finally dismisses the patients as neurotic. This attitude of the physician is especially true with those patients whose apparent condition does not seem surgical and little is done for their "imaginary" pains. Frequently such patients become "demon" health seekers, wandering from doctor to quack and finding little relief.

Among such painful syndromes variously described by writers are the pseudo-anginas or atypical neuralgias. Indeed, some of these conditions may have, or have had, some obscure organic origin with the neuralgic symptoms being as much a result as a cause.

For some years the writer has been studying viscerosensory reflexes¹ with particular reference to pathological conditions of visceral organs and the diagnostic significance of the segmental type of mild hyperalgesia

that may be frequently found. Naturally the occasional neurotic patient who has exhibited objective evidence (hyperalgesia) of visceral tension has at times proved confusing and has provoked this study which tends to show that neurotics do not "imagine" their pains but actually do have some sort of pain. On the other hand, the writer is not prepared to defend the neurotic to the extent that the pain is not exaggerated—merely that neurotic pain is a pain.

Sluder² was the first to bring out the idea that neuralgias of the face could come from a sympathetic origin. He described a syndrome which is constant enough to allow a conclusion that it depends upon some organic mechanism. During his inimitable lectures on the subject of nasal ganglion headaches his attention and viewpoint were directed toward the syndrome as an organic rather than a functional condition. The writer does not recall that Sluder ever considered his syndrome as functional but recalls some of his patients as being neurotic. Also, in Cushing's paper³ describing five types of painful conditions of the face simulating trigeminal neuralgia, and in which he states gasserian neurectomy is to be avoided, "Sluder's neuralgia" was mentioned. Cushing has no explanation for the failure to relieve the pain of a patient in whom Meckel's ganglion and a gasserian root avulsion had been done except that the pain might be "central" and that such a term was inadequate.

Frazier⁴ is more kindly disposed toward Sluder's idea and is emphatic in his statement that infection of teeth and sinuses play no part in true trigeminal neuralgia. He comes across these "atypical" neuralgias and differentiates clearly between them and tic douloureux and speculates regarding the mechanism being of sympathetic or vascular origin. Frazier and Russell⁵ are just as much perplexed regarding the origin of the "atypical" facial neuralgias as those considered typical.

Wilson⁶ reviews the literature pertinent to the subject at hand and describes seven cases of "atypical" facial neuralgia studied from the viewpoint of personality analysis. Two of the seven patients did not make a satisfactory recovery but the others did. He adds to the neurosurgical picture of the "atypical" neuralgia: (1) "The emotional disturbance and the change in the behavior are out of proportion to the symptoms; (2) the personality of these patients is often of a similar type—they are very sensitive, very egotistical and self-centered, in most cases

sublimating for an underlying feeling of inferiority, thus making the defense of the ego-superiority so essential; (3) their physical well-being seems almost impossible in the presence of such suffering and suggests that the pain acts like a paranoid delusion enabling the individual to exteriorize a painful conflict, thus protecting the personality and benefiting body functions. We feel . . . that pain is probably caused by a sympathetic disturbance in the face that is translated into pain by the sensory nerves. . . . The pain leaves when the conflict is solved."

Wilson thus places some of the atypical facial neuralgias on an emotional basis and removes them from the field of surgery.

The following case abstracts are considered from a similar, but not the same viewpoint as Wilson's and they exemplify neurotic pain. The writer has been accustomed to refer to such patients rather euphemistically as having hypersensitive optic thalami but does not insist that this is true.

REPORT OF CASES

PSEUDO-ANGINA

Miss H., aged 33, an overly conscientious, egotistical, decidedly negative woman with a paranoid trend was addicted to self-medication and pulse counting because of palpitation. She had been seen numerous times regarding other conditions but was very unreliable about carrying out medical directions. Any serious attempt to make an analysis for determination of conflicts was repulsed immediately. It was obvious she had an inferiority feeling about herself and that her personality quirks were of a compensatory nature.

Once she came in complaining of "angina pectoris" in a state of anxiety and concealed despair. The pain was described as "radiating" from the upper left chest to the arm, even down into the left leg. It was deep and constant whether at rest or in exertion. Exercise caused breathlessness. She divulged that she had been taking a heart medicine (probably digitalis) which had not relieved her and it was her opinion then that she needed a narcotic for relief.

Physical examination failed to reveal any physical signs which supported her contention, either as to the pain or her diagnosis. Hopeful skepticism was expressed, and without informing her as to the ingredients—after much argument on this point—a prescription containing sedatives and a narcotic was transmitted to a pharmacist and the medicine delivered to her. It afforded her no relief. The next time she appeared it was with an emotional description of the antics of her heart none of which could be confirmed by examination. The mechanism of her symptoms was "denounced" and she was advised with assumed indifference it would be better for her to exercise strenuously until she should decide that her diagnosis was wrong. She found that she could neither exaggerate the pain nor produce it willfully.

Later it developed that she was the self-appointed moral despot of her family and that for some years she had been meeting passive, and at times active, rebellion, indifference and ingratitude. The depression was over the country, but her really serious loss had come about through her own deliberate violation of

commonly accepted principles of safety; her money was stolen without having been through the formality of being converted into securities. Besides, she was temporarily out of work.

Although her "denunciation" did nothing for her refractory personality it has effectively prevented a recurrence of her pseudo-anginal pain for more than two years. Nor can she understand how different it is to be willfully, and fearfully, trying to produce a pain caused by resentment than adding resentment because of ineffectual medicines.

ANXIETY NEUROSIS

Mrs. E. T., aged 39, housewife, had been suffering from pain in the right side of the face at progressively shortening intervals for over six years but suffering daily for six months. Most of the six months she had been totally incapacitated and was first seen in a hospital. At that time there might be pain on either side of the face which radiated down into the neck, the arm and to some extent into the leg. Curiously, the pain was either upon one side or the other.

Some years before a tonsillectomy had been performed with transitory relief. For several years her teeth were under suspicion as well as her nose and throat. At last she insisted upon the extraction of all of her teeth but this afforded no relief.

Meanwhile additional symptoms had supervened, such as palpitation, insomnia, obstinate constipation, menstrual difficulties and dyspepsia. At the hospital where she was being treated with endocrine extracts she was also being virtually anesthetized with sedatives in an effort to overcome the insomnia. She was living in terror of death or insanity.

Fortunately the analysis proceeded with extraordinary rapidity. Within two days it was learned that she had always been self-conscious and over-conscientious. At the age of ten or twelve years she had discovered her mother in a liaison and resolved never to be similarly involved herself. During adolescence and early womanhood she was socially inclined but prudish. Although her mother's liaison had terminated she found it hard for her to suppress her resentment at her mother's influence over her own life, trying hard "to honor thy father and thy mother." She married her physically handicapped husband through kindness as much as love.

For months she was sexually frigid but was promptly pregnant. A "nervous breakdown" occurred for several months after the birth of her child. Three years later a uterine suspension operation was performed. During succeeding years she developed into a veritable "demon housekeeper," eventually having great anxiety regarding unexpected visitors to her home. Part of her self-imposed social duties was an almost daily visit—a telephone call at least—to her mother, and church charitable work. Nor did she neglect her parental duty toward her child.

Within a week after the analysis was started the patient was able to sleep with very mild sedation and the pain was much less troublesome. Psychotherapy proceeded along the lines of reestablishing her self-respect and lessening social fears. It was impressed upon her that she need not be a superwoman to live in the mediocrity of her environment; that there was such a thing as normal selfishness, and that what, presumably, prying and critical neighbors might think of her housekeeping was of little importance as contrasted with her own well-being. In other words, she was shown how to cut her ideals down to her own size and tolerance.

In the course of five or six months she had gained 25 pounds in weight, had resumed all her household re-

sponsibilities and suffered reminders of her pain only when she found herself slipping back into her old habits of too high idealism, which she would promptly rectify.

SYPHILOPHOBIA

Eight years ago at the age of 44 Mrs. G. I. had already been suffering for more than three years with substernal pain on exertion, periodic headaches associated with severe Meniere-like dizziness and vomiting and mucous colitis with constipation. She was an ardent health seeker and had undergone practically every available test except a spinal puncture.

On reviewing the case it is obvious that neither the doctor nor the patient realized at the time what was being done to relieve her of symptoms. She had never before mentioned her syphilophobia but she had read everything upon syphilis she could get, reading also upon collateral symptomatology. No medical examiner had suspected syphilis and the blood tests had been quite negative, but on the strength of a very slightly irregular pupil and diminished knee-jerks—later shown to be emotionally inhibited—her fear was elicited and a spinal fluid examination made. It was negative in all respects.

Thus encouraged she divulged that her old family doctor had told her that her father had suffered from *tabes dorsalis* and that she had been treated with mercury while an infant for "boils." Her father's persistent amateurish efforts had completely straightened her congenitally clubbed feet. She remembered that during childhood play she had discovered the inhibited knee-jerks. After she had begun reading about syphilis she had feared aneurysm of the aorta and cerebral lesions.

Her childhood had been passed in an environment of illness and social disappointment. The patient felt that she had had much to resent from sisters. The man she married, while kindly and successful, had become enslaved by business affairs. As a wife she felt lonely. Her only child was normal and intellectually superior. The patient had taken a very active part in community welfare work.

The possibility of syphilis was presented to her in the light of being "burnt-out" if present at all. The "stolen" blood tests of the husband and child were negative. A provocative therapeutic test proved negative but she wished to continue for several weeks with intravenous injections of sodium iodide.

Meanwhile the dizzy spells and the substernal pain became less severe and less frequent. Forgotten and neglected social obligations were gradually resumed and within two years she had restored her own self-confidence sufficiently to take rather strenuous and prolonged physical exercise.

The patient's buried feeling of social and physical inferiority was strongly resented. The minor resentments of her later life reinforced this emotion to the extent that it caused pain at fear-selected portions of her body. She was fortunate in that her major resentment had been inadvertently relieved and she was able to readjust herself to the minor resentments. Had the major resentment been concerned with her environment it is unlikely that she would have recovered from the pain in the same manner.

CANCERPHOBIA

A spinster, aged 53, had been unable to work for two years because of pain in the epigastrium associated with nausea, vomiting and great weight loss. Two gastro-intestinal fluoroscopic and cholecystographic examinations failed to reveal more than a delayed emptying of the gallbladder and a Riedel's lobe of the

liver. Later when a persistent band of hyperalgesia in the right ninth thoracic segment appeared it was decided after consultations that an exploratory laparotomy should be performed. The gallbladder was only slightly abnormal but was removed.

During the months of observation preceding the operation the cancerphobia had been considerably dispelled. The weight loss had been stopped by persuading her to take a vacation away from the religiously puritanical home. The almost regular week-end pain and gastro-intestinal disturbances were improved by calling attention to this curious periodicity. Furthermore, it was known that if the sister-in-law were to be away from home the patient was invariably better, or, whenever the patient went elsewhere she was much better. But withal, there was much anxiety on the part of the brother and his wife about the patient's health.

Since the cholecystectomy there have been few attacks of pain, almost invariably over week-ends, but not nearly so frequently. The poor financial situation of the patient precludes her better relief from symptoms for she has no other place to go except on charity. The strong reticence of the three concerned makes it impossible to readjust the resentment satisfactorily.

CANCERPHOBIA

A former drug addict who had lost dominance of the family except by illness had been in much fear of cancer. After forcing an examination according to her notion nothing was found to indicate a basis for her fears and aches. Having thus placed herself in this mentally uncomfortable position with her doctor and family she began having severe headache, reminiscent of those before her surgical menopause. Nothing, not even narcotics surreptitiously administered, relieved her of her pain until under dramatic circumstances a "sterile" hypodermic injection of water had miraculous effects.

It was the rather frequent story of the egocentric personality which has been able to dominate up to the time when circumstances cannot longer be altered by her whim, and the resentment practically amounts to a disease. She objects to being "neglected" but still has neglected within her the capability to become well and useful. She has been able to forestall unconsciously all tactful efforts to bring about a change of viewpoint.

DYSMENORRHOEA

Miss T. F., aged 42, a music teacher, had become resigned to suffer with disabling headache, nausea and severe menstrual pain at each period. She had been informed previously that her uterus was infantile and she would probably continue suffering unless she could become pregnant, which would be unlikely even with marriage, or until her menopause. The pain had begun shortly after the menses had started and it seemed that this prediction was probably correct. As a consolation to her vanity she asked to be reduced in weight.

Physical examination showed her to be under some nervous tension with blood pressure labile and somewhat high. Hair distribution and breast development were within normal variation. Bony pelvic configurations were disproportionately small. Introitus admitted two fingers snugly. The corpus uteri was anteflexed and small. There was slight tenderness in the right ovarian region with corresponding skin hyperalgesia which included the area on her back where she had the most pain. The examination started the menses.

Purely as a matter of experiment during her weight

reduction treatment, her emotional state was analysed in an effort to relieve her nervousness and "stage fright." To summarize: The father had always been a domestic tyrant and the mother correspondingly indulgent. The patient's life had been literally filled with suppressed resentments of many different kinds, directed principally at her father and younger sisters who interfered at every opportunity with her social life. Yet, because of her sense of duty to her mother she remained all these years in this environment trying to make the best of it by suppression.

The fourth menstrual period after treatment was started came upon her unawares and terminated painlessly and normally. Meanwhile she had been assisted only by analysis and advice, a very mild sedative and bromsalizol during the periodic pain. Subsequent periods have never been painful unless, as she says, she happens to be so fatigued that resentment gets under her skin in spite of her efforts. The environment has not been altered in any manner of significance, merely, her attitude and toleration have been changed.

HEADACHE

Mrs. C. B., aged 53, a conscientious but egocentric woman, had been having headaches for five to six years but with such severity for two years that they had become her chief concern. A five months sojourn in Arizona during the winter preceding had kept her in fair comfort but no rhinological treatment had been able to accomplish similar relief, winter or summer, while she remained in her home climate.

The headache would "awaken" her at 2 or 3 o'clock in the morning and unless she could find an analgesic at once it would remain until she would fall asleep with exhaustion the following evening. There were many other symptoms and her life was filled with efforts to avoid them. She appeared to be physically ill but nothing organically noteworthy was found except the catarrhal condition of her sinuses.

The patient had been married seven years. The semi-invalided mother-in-law and the totally invalided sister-in-law had not warmly received her into the family. During the first two years the patient and her "in-laws" struggled for dominance but, though living separately, the patient saw herself unable to secure complete dominance. Her conscience told her she should not be jealous of her helpless "in-laws" but she could not prevent it. She became rather panicky.

An effort was made to treat her by indirection but the situation could not be controlled either through the patient or her husband. The mother-in-law had a rather prolonged last illness and, as predicted, the patient herself became much worse. After the death of the mother-in-law the husband was told with all candor possible that he had his choice, viz.: either make a disposition of his invalided sister suitable to his wife or he would have a continuously invalided wife. The sister was placed in an institution and the patient recovered remarkably. Headache returns occasionally but only during periods of temporary frustration.

ARTHRITIS PHOBIA

Mrs. R. K. O., aged 52, a bookkeeper, had been suffering for many months with headaches which radiated down the back of the neck to the midthoracic region. She presented a rather phlegmatic appearance but reluctantly admitted that she was under nervous tension inwardly much of the time. The tears started suddenly when she was asked if she had any family worries.

It developed that she had married only seven years previously and that her twenty-year-old stepdaughter was not reacting in implicit filial devotion to her highly

conscientious social and educational plans for her. Obviously, the patient was attempting to delude herself of her jealousy because of the stepdaughter, and she was slyly put upon her guard against it by suggestive interrogation. A lecture or two on how being tolerant would place her in a situation where there would be less to tolerate and a very mild sedative relieved her discomfort completely for the short time she was under observation. She died in a street accident.

DISCUSSION

As previously indicated by Wilson, patients with pain of emotional origin (1) react out of proportion to all physical and functional indications for the pain; (2) they are egotistical, egocentric and sensitive, though the egocentricity may be disguised by a conscientious compensation, and (3) the pain leaves when the conflicts are assuaged.

The writer can agree with Wilson that the patients have a feeling of inferiority but it is most pronounced at the time of the frustration and of the symptoms. Such people have set up ego ideals which are either too high for them to attain or, if attainable, environment frustrates them. It cannot be agreed that the pain is like a paranoid delusion which exteriorizes a painful conflict protecting the personality and benefiting body functions, but rather it seems to be quite the opposite. It is true that many such patients do take a superlative attitude toward themselves; if they cannot be the best they may be the worst. But they do not enjoy their illnesses even with such left-handed consolation and exhibitionism. Pain alone is not enjoyable.

As to the mechanism and origin of the pain, it appears reasonable that once a pain pathway has been used it may be more easily used again. Withal, emotional tension is nervous tension and the pain is the result of the overflow escapement, the release, of nervous impulses by pathways previously conditioned to pain reception. For example, the emotional tension finds an outlet over a motor pathway in such excess—or conditioned excess—that pain is the resulting sensation to the patient. He neither simulates nor imagines but does truly feel a painful sensation which at the time does not have an organic cause save a functional disturbance.

A patient in this state should be considered as an "anger neurotic." Apprehension aroused by the symptoms may in time cause the patient to become a "fear neurotic." The pain of the anger neurotic may be relieved only by strongly diverting his emotional tension toward some other outlet, something of an ego compensatory nature,

or by environmental or social alterations which will allow the conflicts to subside. These requirements are easier and more quickly enumerated than accomplished, of course.

CONCLUSIONS

It appears that suppressed or unrelieved resentment is capable of causing pain in a manner suggestive of a conditioned reflex.

From this viewpoint psychogenic pain must be considered as an emotional release rather than as an escape in the usual interpretation, and not necessarily having an unconsciously protective objective.

The sensitive, often negativistic, egotistical and egocentric personality, with or without unconscious social compensation, is susceptible to the development of pain from an emotional (psychogenic) origin.

The pain may be relieved by ego compensating diversion or by the social relief of the cause of the underlying emotional conflicts.

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BIBLIOGRAPHY

1. Cady, Lee D.: Skin Manifestations of Visceral Disease, *J. Missouri M. A.* **29**:364 (August) 1932.
2. Sluder, G.: Nasal Neurology: Headaches and Eye Disorders, St. Louis, C. V. Mosby, p. 94, 1927.
3. Cushing, H.: The Major Trigeminal Neuralgias and Their Surgical Treatment Based on Experiences With Three Hundred and Thirty-Two Gasserian Operations, *Am. J. M. Sc.* **160**:157 (August) 1920.
4. Frazier, C. H.: Atypical Neuralgia, *Arch. Neurol. & Psychol.* **19**:650 (April) 1928.
5. Frazier, C. H., and Russel, E. C.: Pain Phenomena of the Face, Their Origin and Treatment With Special Reference to Trigeminal Neuralgia, *Am. J. M. Sc.* **169**:459 (April) 1925.
6. Wilson, D. C.: Atypical Facial Neuralgia, *J. A. M. A.* **99**:813 (September) 1932.

Frank Hammond Krusen, Philadelphia (*Journal A. M. A.*, April 6, 1935), believes that before short wave and ultra-short wave diathermy machines are used extensively: 1. They should be improved in construction, and the manufacturers should specify definitely the wave-lengths of the apparatus and their output in watts. 2. Fire hazards should be eliminated. 3. An accurate method of measuring dosage should be perfected. 4. More data concerning the physiologic effects of the waves they produce should be amassed. 5. The idea that the apparatus is simple to operate and that treatment may be given through the clothing should be dispelled. 6. The technic of application should be improved so that the danger of burning sensations is lessened. It would seem that with further study by physicists and engineers concerning the proper methods of constructing apparatus, and with further clinical investigation by especially skilled physicians in hospital physical therapy clinics, short wave diathermy may prove to be a useful therapeutic agent. But at the present time many of these devices have not been sufficiently perfected, and it must be confessed that knowledge of the exact physiologic effects of these waves is very limited. Extensive employment of these machines at the present time can lead only to unsatisfactory results and may cause condemnation of a method of treatment that might otherwise be found serviceable.

AN OUTBREAK OF BACILLARY DYSENTERY AT THE ST. LOUIS CITY HOSPITAL

E. SIGOLOFF, M.D.

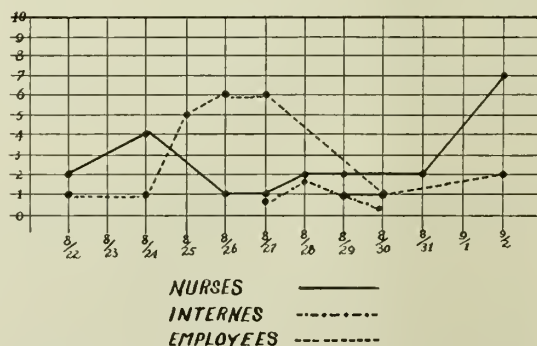
AND

M. E. BARON, M.D.

ST. LOUIS

Bacillary dysentery apparently has never been a public health problem in St. Louis if the total number of reported cases is an accurate index of its extent. Prior to 1929 no attempt was made to classify dysentery in St. Louis so that the actual number of cases of bacillary dysentery remains unknown. Since 1929 only 112 cases were reported to the health division. These figures are obviously incorrect since many cases are either unrecognized clinically or never examined bacteriologically. A large number of cases remain unidentified because medical advice is never sought. That bacillary dysentery occurs endemically throughout the world and occasionally in epidemic form is well known. The outbreak at the St. Louis City Hospital, though similar to others reported in the literature, is unusual in our experience.

On September 1, 1934, Doctor Rowlette, medical director of City Hospital No. 1, informed us of an outbreak of bacillary dysentery caused by the Hiss-Russell organism in that institution. This outbreak started on August 22 with one nurse and two of the employees becoming ill. In the following few days twenty-one additional nurses and some of the employees were isolated because of diarrhea. The distribution of cases and the date of onset of illness is shown in figure 1. It is interesting to note that during the time of the epidemic there was no increase of this disease in the city as a whole. Only twenty-nine cases and four deaths from



From the St. Louis Health Department, Communicable Disease Service.

bacillary dysentery were reported to the health division since January 1, 1934.

In chart 1 the number of cases is plotted on the ordinate and the date of onset on the abscissa. It is seen from this chart that the onset of dysentery began with the nurses on August 22 with two cases and increased to four cases by August 24. It was not until August 25 that five cases appeared among the help. On August 27 the first case appeared among the interns.

In addition to the group of cases plotted in figure 1, there were five nurses who had had attacks of diarrhea prior to the outbreak. Two had diarrhea in July, one was ill periodically during the summer, one suffered from chronic diarrhea for three years and had diarrhea in August, 1934, and one had two attacks of dysentery on August 26 and September 2, 1934. Although we were informed that many of the employees, who were not isolated, suffered from diarrhea periodically during the hot summer months none of them admitted it.

When we began our investigation on September 1, 1934, there were fifty-two cases isolated, including twenty-seven nurses, seven interns and eighteen of the employees. The symptoms of those isolated are tabulated in table 1.

Table 1. Symptoms Shown by Dysentery Cases in the St. Louis Hospital Group

| Symptoms | Nurses | Interns | Employees |
|----------------------|--------|---------|-----------|
| Fever | 12 | 1 | 10 |
| Diarrhea | 26 | 6 | 18 |
| Chills | 7 | 0 | 5 |
| Abdominal pain | 14 | 2 | 11 |
| Abdominal tenderness | 9 | 2 | 10 |
| Nausea | 14 | 1 | 10 |
| Vomiting | 7 | 1 | 7 |
| Tenesmus | 23 | 4 | 12 |
| Headache | 18 | 0 | 9 |
| Weakness | 15 | 0 | 8 |
| Prostration | 3 | 0 | 3 |
| Loss of appetite | 15 | 0 | 7 |
| Thirst | 6 | 2 | 4 |
| Loss of weight | 7 | 1 | 0 |
| Blood in stools | 6 | 1 | 2 |
| Mucus in stools | 9 | 1 | 4 |

The duration of illness did not coincide with the isolation of the Hiss-Russell organism. On the contrary, many patients were quite ill despite negative stool cultures. The negative bacteriological cultures in most of these instances were due to the rapid development of bacteriophage resulting in the lysis of the organisms. It is well known, however, that illness due to the Hiss-Russell organism is mild and of short duration whereas that attributable to the Shiga bacillus is relatively severe and of lengthy duration. In table 2 the duration of illness in the three groups is tabulated.

Table 2. Duration of Illness in the Three Groups of Patients Having Dysentery

| Group | 1-2 days | 3-4 days | 5-6 days | 9-10 days | 2 weeks |
|-----------|----------|----------|----------|-----------|---------|
| Nurses | 12 | 2 | 7 | 2 | 2 |
| Interns | 4 | 1 | 1 | 0 | 0 |
| Employees | 9 | 3 | 3 | 3 | 0 |

A bacteriological study of the hospital personnel showed that of the 130 persons cultured ten were found to harbor *B. dysentery* Hiss-Russell. In a group of fifteen persons, organisms having some of the characteristics of the enteric group were isolated. In table 3 the distribution of these findings is shown.

Table 3. Bacteriological Findings in the Personnel of the City Hospital Groups

| | Nurses | Interns | Employees |
|----------------------------|--------|---------|-----------|
| <i>B. dysentery</i> | | | |
| Hiss-Russell found | 6 | 0 | 4 |
| Unclassified enteric group | 6 | 2 | 7 |

During the course of the investigation the following facts were noted:

1. The largest number of cases occurred among the nurses who ate in the hospital and at a local confectionery. In this confectionery *B. dysenteriae* was not isolated from any of the employees.

2. The interns, comprising the smallest group of cases, always patronized a different confectionery. At this store *B. dysenteriae* was also not isolated from any of the employees.

3. The majority of the employees who were isolated ate exclusively in the hospital but separate from the nurses and interns. These included three kitchen help, five attendants on divisions, one engineer, three waitresses, two laundry workers, one plumber, one pharmacist, one chief cook, one clinic attendant and one chemist.

4. No cases of bacillary dysentery occurred among the patients while in the hospital though a number were admitted because of diarrhea.

5. The patients were served only cooked foods, while the nurses and interns received raw vegetables frequently and the employees less commonly.

6. There were many flies in both the special and main diet kitchens as well as in the dining rooms.

7. The hospital has had a contract with the same produce company for many years.

8. No waitress attended any one table exclusively.

Analysis of the above indicated the probable presence of a focus of infection in the kitchen, especially among those handling raw vegetables. When this was realized all

foods were ordered cooked. As a result of this suggestion no new cases developed after forty-eight hours. Routine culturing of all food handlers was begun and each of these employees was investigated as to previous attacks of diarrhea and other clinical symptoms. The histories in this group were negative. In all, seventy-eight food handlers were examined bacteriologically and interviewed.

The only food handler from whom a positive Hiss-Russell culture was obtained was a woman handling vegetables. Six subsequent cultures of her stools were made and all were reported negative. She denied ever having had diarrhea at any time. The laboratory also reported a number of patients in whom organisms resembling in some respects the enteric group were found. Further investigation of these organisms showed that some were slow fermenters of lactose and that none agglutinated specific antisera.

DISCUSSION

It is difficult to establish with certainty just who actually caused the outbreak. On one occasion only were we able to isolate *B. dysentery* Hiss-Russell from the stool of a food handler who was never presumably ill with diarrhea. It is entirely possible that she was an intermittent carrier of this organism thus explaining the sporadic cases and the outbreak. Our failure to obtain more positive Hiss-Russell cultures from this case as well as from others might be due to the presence of bacteriophage with the resultant lysing of the organisms.

SUMMARY

An outbreak of dysentery in the St. Louis City Hospital caused by the Hiss-Russell organism is discussed. Out of a total of 130 persons examined, 10 were found to harbor this organism. The original source of this infection was not determined. The outbreak was readily controlled by cooking all foods. One food handler is under suspicion and her stools are repeatedly being cultured in an attempt to determine definitely her status as a carrier.

Missouri Building.

According to James H. Mitchell, Chicago (*Journal A. M. A.*, April 6, 1935), there is a marked tendency to regard all acrodermatoses as ringworm of the extremities. There is a need for careful laboratory examination of all dermatoses of the hands and feet before arriving at a diagnosis. He agrees with Sabouraud, Macleod, Walker and Roxburgh that impetigo (Tilbury Fox) is due to the streptococcus; this fact can be proved with ease.

WHAT MAY WE EXPECT OF DINITROPHENOL?

O. S. JONES, M.D.

ST. LOUIS

By using this most powerful of all metabolic stimulants we may expect to reduce the obese patient of 250 pounds to one of 200 or less, if the individual is not sensitive to this drug. Unfortunately, 10 per cent of all patients are apparently sensitive to dinitrophenol.

According to Cutting, Mehrtens and Tainter, the first users of the drug clinically, the rate of metabolism of the body cells may be increased to 50 per cent above normal. Higher percentages than this are not desirable. The action of the drug is not entirely known, except that it acts as a direct cellular stimulant to produce a more rapid rate of metabolic exchange.

Like all active valuable drugs, dinitrophenol is also a double-edged sword. Doses within the proper therapeutic range work wonders in nonsensitive individuals; but excessive doses may bring about the death of the person treated. Of course, this is also true of morphine and strychnine; and more valuable drugs are yet to be found.

Under properly controlled conditions there should be no fear in instituting a course of treatment with this powerful addition to our armamentarium. The group of individuals who possess an idiosyncrasy to dinitrophenol soon make their handicap known by presenting an urticaria. This is usually the first sign that a patient is unable to receive dinitrophenol medication. In most cases the urticaria appears in about ten to fourteen days after the onset of medication. With a beginning dosage of 3 grains a day, this rash appears after about 30 to 50 grains have been taken. The medication is stopped as soon as this condition appears. The originators of the clinical usage of this drug have again given the drug to sensitive individuals without the reappearance of the urticaria.

At least four deaths have been reported in the American literature. One was a very rare form of susceptibility and a case worthy of note. In this case, reported by Poole and Haining, the young woman died following the oral administration of sixteen 3-grain capsules in a period of six days. This is the only report of a death from such a comparatively small amount of drug. Undoubtedly, this is a case of extreme idiosyncrasy; and no preliminary small doses had been tried to

test this susceptibility, as the patient was not under a physician's care.

Tainter and Wood report a death of a person who took approximately 75 grains at a single dose to produce a hyperpyrexia for a supposed syphilis of the central nervous system. This is seventeen times the usual therapeutic dose, and eight times the largest dose ever given to the most resistant of patients. This person had been a student of medicine and was not under a physician's care at the time of the poisoning.

A diminution of hearing has been reported by Dintenfass following several attempts to use dinitrophenol by a sensitive individual. This is a most unusual complication.

Bearing in mind the pitfalls of excessive doses, one should be able to control the administration of the drug for the desired therapeutic effect. A dose of 1 grain three times a day is enough to test the susceptibility of the patient. No more than five days' supply should be given the patient at one time. It is best to control the supply of drug personally to overcome the refilled prescription hazard. After two weeks and no urticaria development, it is safe to increase the dose to $1\frac{1}{2}$ grains three times a day. A mild susceptibility may now appear. A dose of 6 grains a day is the maximum for an individual of 150 pounds. However, obesity concerns people of 250 pounds, and here a dose of 9 grains a day would be considered the maximum in patients who have been proved to have no dinitrophenol idiosyncrasy. Four weeks is necessary to establish definitely the presence of idiosyncrasy, with a dosage of from 3 to 5 grains a day.

Dieting does play a role in these reduction treatments. A vegetable diet is best. I prefer to give the patient a list of food-stuffs as

DIET

EAT:

| | | |
|----------------|------------|-------------------|
| corn | lettuce | milk |
| peas | cucumbers | tea |
| beans | olives | coffee |
| spinach | pickles | broth |
| egg-plant | watermelon | beefsteak (small) |
| cabbage | cantaloupe | veal (small) |
| sauerkraut | plums | apples |
| sweet potatoes | apricots | pears |
| tomatoes | bananas | eggs |
| celery | oranges | fish |
| onions | carrots | cheese |

DO NOT EAT:

| | | |
|--------|-----------|----------------|
| bread | cereals | biscuits |
| pastry | cream | lard |
| pie | butter | fried food |
| cake | rolls | white potatoes |
| candy | jellys | pork |
| sugar | doughnuts | fat |

in the accompanying chart, with the notice in red ink at the bottom, "Stop taking medicine if an itching rash appears."

The urticaria is usually the earliest sign of hypersensitivity in the patient. This continues for four days after the drug is withdrawn. Other symptoms which may appear at the same time are, dizziness, weakness, edema of the eyelids and excessive sweating.

In the several reported deaths the condition was one of hyperpyrexia, with a death similar to one which would be expected in heat stroke. Fever is the prime sign of excessive dosage. This fever will appear in any subject who takes enough dinitrophenol to increase the metabolic rate much higher than 50 per cent. In general, a much larger daily dose than 4 grains per 100 pounds of the body weight is necessary to produce fever in nonsensitive individuals.

There is no known chemical antidote for clinical overdose of this drug. Animal experimentation has shown the application of ice packs to the skin and oxygen inhalation to reduce the toxicity of the drug. Hypodermic injections of 1 cc. doses of adrenalin 1 to 1000 solution has relieved the intense itching for short periods of time. A 1 per cent phenol lotion also has some slight beneficial effect.

The one condition of which all patients taking this drug complain of is sweating. This is due to the increased metabolic action of the drug. As a rule, patients taking this reduction treatment feel better than ever before. A few neurasthenic individuals complain of weakness and other symptoms referable to the increase in body metabolism.

It is interesting to note the special predilection the action of the drug has upon the abdominal fat supply. It is here that most of the reduction takes place. Patients have been known to lose twelve inches from their waist line measurements. A few of my own case histories have been included here to show the variable effect of the drug.

REPORT OF CASES

Case 1, male, aged 28, weight 257 pounds, height 5 feet 8 inches. Large abdominal fat deposit. Performed light duties in a store. Began treatment on July 5, 1934, with $4\frac{1}{2}$ grains a day. He was placed on the routine diet of vegetables. After four weeks treatment at the rate of $4\frac{1}{2}$ grains a day, he was raised to 7 grains a day. At the end of six weeks he had lost thirty pounds and at the end of twelve weeks he had lost fifty pounds. The patient then discontinued the treatment. His only complaint was sweating.

Case 2, female, aged 55, weight 216 pounds, height 5 feet 3 inches. Most of weight about abdomen. A very light diet has always been used by this patient because she claimed she had no appetite. She was given

4½ grains of dinitrophenol a day for four weeks. This was then increased to 6 grains a day. After two months' treatment she weighed 175 pounds. A two week rest period was given with no medication. She gained no weight during this time for she ate but little. Again the medication was started; and at this time, three months after starting treatment, she weighed 167 pounds. This patient did no work whatsoever.

Case 3, male, aged 57, weight 235 pounds, height 6 feet. Generalized fat deposit. He ate a high caloric diet because of his being on the dole, and had an old broken hip and could not move about much. After four weeks' treatment with 4½ grains of dinitrophenol every day he had not lost a single pound of weight. The treatment was discontinued.

Case 4, male, aged 45, weight 256 pounds, height 5 feet 11 inches. He does heavy manual labor. He has generalized fat deposition and not a huge abdominal layer as in most obese cases. After three weeks of treatment at the rate of 4½ grains a day, the dose was gradually increased to 10 grains a day. His only complaint was the large amount of sweating. His appetite was increased by the use of this drug. After eight weeks of treatment he has lost but twenty pounds and so discontinued the treatment.

Case 5, female, aged 30, weight 170 pounds, height 5 feet 4 inches. There was a large abdominal fat deposit. She was given 3 grains a day for one week with no loss of weight. The usual diet was given. The following week 4½ grains a day were given; but on the eleventh day of the course of treatment a severe urticaria developed together with an edema of the eyelids. This persisted for three days. No further medication was attempted.

COMMENT

Dinitrophenol is the greatest of all metabolic stimulants for those who are not sensitive to it. Unfortunately, many are sensitive. A test period of four weeks is necessary to establish lack of sensitivity. The type of case which does the best under this therapy is one with a huge abdominal fat deposit who has no neurasthenic manifestations so that the drug can be used over a period of three or four months. Neurotics are very poor subjects for their symptoms are further magnified by this treatment. After sensitivity has been ruled out, a daily dose of 4 grains per hundred pounds of weight may be considered a maximum for safety. Because of the slight burning sensation in the stomach after taking the drug, it is best given in a one third daily dose following each meal.

A diet consisting of vegetables is very necessary. There is not the nervousness associated with this treatment that there is with thyroid therapy; and, in properly selected cases, the results are dramatic.

A note of interest is the staining properties of dinitrophenol. Should this substance get on the hands a week's scrubbing is necessary to remove it. All druggists should use rubber gloves when filling the capsules.

The excessive sweating may make it im-

possible to use the drug during the winter season, due to the increased susceptibility to common colds.

The few reported deaths should not deter physicians from using this drug in the proper dosage with patients who have been tested for idiosyncrasy.

SUMMARY

1. Dinitrophenol is the greatest metabolic stimulant known and will usually reduce weight promptly in nonsensitive individuals.

2. Idiosyncrasy unfortunately exists in 10 per cent of all cases and manifests itself first by an urticaria.

3. Four weeks with small doses of dinitrophenol are necessary to establish nonsensitivity. Deaths have been reported but under proper therapeutic regulations no such fear should be present.

4. The ideal patient for this therapy is one with a large abdominal fat deposit who is neither neurotic nor sensitive to the drug.

5. After sensitivity has been discovered present a second attempt may be made to administer the drug after a rest period. The second attempts are often successful.

6. No true antidote for overdosage is known but ice packs to the skin surfaces and oxygen inhalations have lowered the toxicity in animal experimentation, and so are recommended for such an unfortunate occurrence in clinical practice.

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BIBLIOGRAPHY

1. Hall, V. E., et al.: Carbohydrate Metabolism, Respiration and Circulation in Animals With Basal Metabolism Heightened by Dinitrophenol, *Am. J. Physiol.* **106**:432-440 (November) 1933.
2. Cutting, W. C.; Mehrten, H. G., and Tainter, M. L.: Actions and Uses of Dinitrophenol, *J. A. M. A.* **101**:193-195 (July 15) 1933.
3. Council on Pharmacy and Chemistry: Preliminary Report of the Council, *J. A. M. A.* **101** (July 15) 1933.
4. Cutting, W. C., and Tainter, M. L.: Metabolic Action of Dinitrophenol, *J. A. M. A.* **101** (December 30) 1933.
5. Tainter, M. L., and Cutting, W. C.: Miscellaneous Actions of Dinitrophenol, *J. Pharmacol. & Exper. Therap.* **49**:187-208 (October) 1933.
6. Tainter, M. L., and Cutting, W. C.: Febrile, Respiratory and Some Other Actions of Dinitrophenol, *J. Pharmacol. & Exper. Therap.* **48**:410-429 (August) 1933.
7. Jackson, H., and Duvall, A. I.: Dinitrophenol Poisoning, *J. A. M. A.* **102**:1844-1845 (June 2) 1934.
8. Bolliger, A.: The Detection and Estimation of Dinitrophenol, *J. Australia* **1**:367-369 (March 17) 1934.
9. Rahinowitch, I. M., and Fowler, A. F.: Dinitrophenol, *Canad. M. A. J.* **30**:128-133 (February) 1934.
10. Dintenfuss, H.: An Ear Complication From Dinitrophenol Medication, *J. A. M. A.* **102**:838 (March 17) 1934.
11. Frumess, G. M.: Allergic Reaction to Dinitrophenol, *J. A. M. A.* **102**:1219-1220 (April 14) 1934.
12. Massermann, J. H., and Goldsmith, H.: Dinitrophenol, *J. A. M. A.* **102**:523-525 (February 17) 1934.
13. Poole, F. E., and Haining, R. B.: Death From Dinitrophenol, *J. A. M. A.* **102**:1141-1147 (April 7) 1934.
14. Tainter, M. L., and Wood, D. A.: Fatal Dinitrophenol Poisoning, *J. A. M. A.* **102**:1147-1149 (April 7) 1934.
15. Tainter, M. L.: Low Oxygen Tensions and Temperature on the Actions of Dinitrophenol, *J. Pharmacol. & Exper. Therap.* **51**:45-58 (May) 1934.

ROCKY MOUNTAIN SPOTTED
FEVER

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AND

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Recently a patient was seen that presented quite a problem in diagnosis. Because of the rarity of the condition in this locality and the possibility of more cases developing it was thought worth while to report the case.

The man was a butcher engaged in dressing Government drouth cattle. He did not give a definite history of tick bite but stated the cattle were heavily infested with ticks. It is known that tick bites are painless, so it was impossible to exclude his having been bitten.

The tick, *Dermacentor venustus*^{1, 2, 3} is the known vector of the disease, and feeds upon cattle⁴ and other domestic as well as wild animals in the regions where it is found. The disease has been considered to be strictly limited to the Rocky Mountain area, hence the name. It has been shown that the name Rocky Mountain Spotted Fever is a misnomer⁵ as cases do occur outside of the mountain regions and simply spotted fever would be the better designation.

The cattle concerned in this case came from regions known to be infested with *Dermacentor venustus*. Knowing that the cattle were heavily infested with ticks we could not exclude tick bite and, furthermore, the man's symptoms fitted in with those described for spotted fever. So we feel justified in reporting the case as such. The case history follows:

REPORT OF CASE

E. J., a man aged 41 years presented himself for treatment on September 4, 1934, and gave the following history:

His illness began abruptly with a chill and high fever the morning of August 31, 1934. This was followed by a gradual development of headache, severe backache, generalized aching, insomnia and a feeling of nausea without vomiting. He said he had been having high fever with numerous chilly sensations and had continued his work for two days with difficulty. He then broke out with a rash over the entire body which showed itself first on the extremities and the forehead. This rash consisted of numerous small circular areas of a bright red color unaccompanied by pain or itching. These areas then became progressively larger and somewhat darker in color. He complained of excessive bowel movements for the last two days, but admitted taking a cathartic. He gave his occupation as a butcher and said during the last few weeks he had been engaged in dressing Government drouth cattle. He further stated that many of these cattle were condemned as unfit for food and many were heavily infested with ticks.

Examination revealed a well developed male of middle age, very weak, nervous, conscious and rational. Temperature 103, pulse 100, regular and of good volume. There was a generalized blotchy macular eruption, most pronounced on the face and extremities. The macules were about 1 or 2 cm. in diameter, irregular edges and a definite tendency toward confluence. Color was deep rose red which did not disappear entirely on pressure and many had an intracutaneous hemorrhagic tendency. The conjunctivae were markedly injected. The tongue was heavily coated with decidedly reddened edges and tip. The throat showed no pathology. The chest was negative except for a mild bronchitis. The abdomen showed no rigidity but was slightly tender throughout, with a marked tenderness on deep pressure over the area of the spleen. The genitalia were negative. Reflexes were present, both sides equal.

Laboratory Findings.—September 4, 1934, W. B. C. 11,200, polymorphs 84 per cent, juveniles 9 per cent, stabs 40 per cent, segmenters 35 per cent, eosinophils 0 per cent, basophils 0 per cent, lymphocytes 13 per cent, monocytes 3 per cent. Smears showed a marked regenerative picture, both in the neutrophils and the lymphocytes. Six of the thirteen lymphocytes showed a deep blue staining cytoplasm with plasma cells and Tuerk cells predominating, the so-called "Gay" blood picture. Number of platelets normal.

September 5. Stool culture negative for members of the typhoid paratyphoid and dysentery group. Agglutination tests with *Brucella abortus* and proteus OX 19 negative. Bleeding time three minutes and clotting time four minutes.

September 8. Urinalysis, light yellow, sp. gr. 1.018, negative for sugar, trace of albumen. Microscopic examination showed an occasional hyaline cast and a rare red blood cell. Wassermann test negative, Kline precipitation test negative.

September 10. On repetition the W. B. C. was 9,000. The differential count showed, polymorphs 71 per cent, stabs 20 per cent, segmenters 51 per cent, eosinophils 1 per cent, basophils 0 per cent, lymphocytes 27 per cent, monocytes 1 per cent. This count still showed a regenerative picture in both the lymphocytes and the neutrophils. In this smear only eight of the twenty-seven lymphocytes showed the deep blue cytoplasmic stain, as compared to six of the thirteen lymphocytes in the smear of September 4. Plasma cells and Tuerk cells were rare in this smear. The regenerative shift in the neutrophils was much less marked than at the previous examination. Agglutination tests with *B. typhosus*, *B. paratyphosus* A and B, *Brucella abortus* and proteus OX 19 negative.

September 20. Urinalysis straw color, clear, acid, sp. gr. 1.016, negative for sugar, slight trace albumen. Microscopic examination showed a few hyaline and finely granular casts.

A guinea pig was injected intraperitoneally with 10 cc. of defibrinated blood and was still in good health thirty days later. No adenopathy had developed and no swelling or other involvement of the scrotum. The animal appeared sick on the third and fourth days following the injection. His coat was ruffled and he refused food. Since that time to all appearances he has been normal.

The progress of this case showed a gradual improvement; the rash began to fade on the eighth day and was followed by a slight

desquamation the following day. The tenderness in the right upper abdomen was markedly decreased by the seventh day and completely gone several days later. The fever remained high until the ninth day, then gradually subsided ending by lysis after which he made an uneventful recovery.

In view of the unusual clinical findings a fairly extensive survey of the literature was made and all logical conditions were taken into consideration. The following were considered: Typhus fever, undulant fever, cerebrospinal meningitis, purpura, measles, typhoid fever, paratyphoid, dysentery, atypical syphiloderm and Rocky Mountain spotted fever.

The rash did not resemble that of measles and there were likewise no Koplik spots or acute upper respiratory infection. Cerebrospinal meningitis was readily ruled out by the absence of neck rigidity and negative Kernig signs. Agglutination tests for typhoid, paratyphoid A and B were negative, and stool cultures for members of the typhoid, paratyphoid, dysentery group eliminated the possibility of these respective conditions. Agglutination tests for *Brucella abortus* were twice negative. In view of the negative Wassermann and Kline an atypical syphiloderm was eliminated. Purpura likewise was eliminated since there were no subcutaneous hemorrhages and the platelet count and bleeding time were normal.

Having ruled out the above possibilities, the chief differential point in diagnosis was between typhus and Rocky Mountain spotted fever. From the history, the type and distribution of the rash,⁶ that of typhus never involving the face, and the tongue findings,⁷ the picture was most certainly that of spotted fever. The Weil Felix⁸ reaction (agglutination tests with proteus OX 19) was negative, both during the first week and again during the second week of the disease tending to rule out typhus. The W. B. C. and differential pictures, however, would fit in equally well with either condition (the so-called "Gay"⁹ blood picture with atypical lymphocytes and monocytes). Further, the case followed the course of spotted fever, the fever ending by lysis¹⁰ rather than by crisis.

Guinea pig injection gave us no information. The so-called Anderson Goldberger test¹¹ for atypical typhus was negative. This test, however, is inconstant even in proved cases of typhus. The animal likewise showed no signs of Rocky Mountain spotted fever. Guinea pigs injected with the blood

of severe cases of spotted fever usually have a marked hemorrhagic involvement of the scrotum.

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BIBLIOGRAPHY

1. Wilson, L. B., Chowning, W. M.: Studies in Pyramplasmosis Hominis of the Rocky Mountains, *J. Infect. Dis.* **1**:31, 1904.
2. King, W. V.: Experimental Transmission of Rocky Mountain Spotted Fever by Means of the Tick: Preliminary Note, *Pub. Health Rep., U. S. Pub. Health and Marine Hosp. Service*, July 27, 1906.
3. Ricketts, H. T.: The Transmission of "Rocky Mountain Spotted Fever" by the Bite of the Wood Tick, *J. A. M. A.* **47**:358, 1906.
4. Ricketts, H. T.: The Role of the Wood Tick in Rocky Mountain Spotted Fever and the Susceptibility of Local Animals to the Disease: A Preliminary Report, *J. A. M. A.* **49**:24, 1907.
5. Spencer, R. R.: Rocky Mountain Spotted Fever, *J. Infect. Dis.* **44**:257, 1929.
6. Greene, C. L.: Medical Diagnosis, Philadelphia, P. Blakiston's Son & Co., 1926, p. 1055.
7. Wolbach, S. B.: Studies on Rocky Mountain Spotted Fever, *J. M. Research* **41**:1, 1919.
8. Felix, A., and Rhodes, M.: Serological Varieties of Typhus Fever, *J. Hyg.* **31**:225, 1931.
9. Schilling, V.: The Blood Picture and Its Clinical Significance; Translated and edited by R. B. H. Gradwohl, St. Louis, C. V. Mosby, 1929, pp. 134-268.
10. Nelson Living Medicine, Rocky Mountain Spotted Fever, Wolbach, S. Burt, **2**:215.
11. Greene, C. L.: Medical Diagnosis, Philadelphia, P. Blakiston's Son & Co., 1926, p. 1051.

OF UROLOGIC DISEASE

Sidney A. Portis and J. S. Grove, Chicago (Journal A. M. A., March 2, 1935), report nine typical cases of their thirty from which it is evident that urologic disease can and does cause gastro-intestinal symptoms. The more recent addition of intravenous pyelography to the armamentarium of diagnosis procedures has shed light on this phase of disease. The authors recognize the fact that intravenous pyelography has some shortcomings, but this should not detract from its helpfulness in leading to more accurate diagnoses in certain groups of cases. The cooperation of the urologist with the internist has brought about a clearer understanding of many obscure pictures that heretofore have not been recognized and that have been treated for many years symptomatically with no relief. Multiple operations are resorted to, and no improvement in the original picture is brought about. These patients are frequently mislabeled—treated as "neuro," or hypochondriacs—and are classified frequently in that all inclusive diagnosis "colitis," and yet are no better after the best of talent has had an opportunity to prove its skill. With these facts in mind the authors feel justified in drawing the following conclusions: 1. The interrelationship of the nerve paths of the urinary and gastro-intestinal tract may explain this curious relationship of symptoms. 2. Women with urethral pathologic changes frequently show gastrointestinal manifestations. 3. Pressure phenomena and displacement play a part in a certain group of cases. 4. Pathologic changes in the lower part of the urinary tract in the male may cause symptoms, particularly in middle aged men. The authors do not offer this evidence as a panacea for all obscure gastro-intestinal complaints. However, they do feel that it is justifiable for the gastro-enterologist to become urologically minded enough to explain at times these many obscure clinical pictures.

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MAY, 1935

EDITORIALS

THE EXCELSIOR SPRINGS SESSION

Plans for the Seventy-Eighth Annual Session of the Missouri State Medical Association to be held in Excelsior Springs, May 6, 7, 8 and 9, have been practically completed and the outlook promises a most successful meeting. The scientific program includes contributions by many of the most prominent physicians in the state and the Association has been fortunate in the guests who will present addresses at the different sessions. These guests are Dr. R. G. Leland, Chicago, Director of the Bureau of Medical Economics; Dr. Austin A. Hayden, Chicago, Secretary of the Board of Trustees, and Dr. W. W. Bauer, Chicago, Director of the Bureau of Health and Public Instruction, all of the American Medical Association; Dr. J. S. Coulter, Chicago; Dr. Oswald S. Lowsley, New York, and Dr. Cecil S. O'Brien, Iowa City.

The Clay County Medical Society, the host society for the Session, has been most diligent and despite a bereavement by the death of their revered secretary of many years, Dr. J. J. Gaines, Excelsior Springs, the various committees have gone ahead with their work and have everything in readiness for the meeting.

Scientific exhibits will be an important feature of this Session. They are well diversified and each member should find at least a part of them of much interest to him. The commercial exhibits will also interest the members with displays of products and services to physicians.

The opening meeting of the Session will begin at 9:30 a. m. on the morning of May 6 and will be entirely devoted to the proceedings of the House of Delegates. The Coun-

cil also has a meeting during the recess interval of the House. The second meeting of the House of Delegates will be held preceding the scientific session on Wednesday morning thus allowing more time for the general meeting. The Council will hold its second meeting as a luncheon meeting on Wednesday.

It is hoped that a large number of members will attend the Session as each will gain in knowledge and comradeship and each will add to the value of the Session.

PROPOSED AMENDMENTS TO THE CONSTITUTION

The following amendments to the Constitution of the State Medical Association were submitted by the delegates from the St. Louis Medical Society at the St. Joseph Session, 1934. According to Article XIII of the Constitution amendments to the Constitution must be presented at the previous Annual Session and published twice in THE JOURNAL of the Association. This is the second publishing of the proposed amendments and they may therefore be acted upon at the Excelsior Springs Session of the House of Delegates, May 6, 1935. The amendments follow:

Amend Article V by striking out "(1)" and the words "and (2) the officers of the Association enumerated in Section 1 of Article IX of this Constitution," and by adding two new sections so that when amended the Article shall read:

Article V.—House of Delegates

Section 1. The House of Delegates shall be the legislative body of the Association and shall consist of delegates elected by the component county societies.

Sec. 2. The House of Delegates shall meet for the purpose of organization at the call of the President of the Association on the first day of the Annual Meeting.

Sec. 3. The officers of the House of Delegates shall be a Speaker and a Vice Speaker elected by the delegates from their body, and the Secretary of the Missouri State Medical Association who shall be without vote.

Amend Section 1, Article IX by inserting after the word "Treasurer" the words "Speaker and Vice Speaker of the House of Delegates," so that when amended said Section 1 shall read:

Article IX.—Officers

Section 1. The officers of this Association shall be a President, a President-Elect, three Vice Presidents, a Secretary, a Treasurer, a Speaker and Vice Speaker of the House of Delegates, and twenty-nine Councilors, more or less as shall be determined by the House of Delegates from time to time.

Amend Section 2, Article IX by inserting after the word "annually" the words "by the House of Delegates"; by inserting after the words "year" in the fourth line the words "by vote of the members of the component county societies of the Councilor Districts" and by striking out the words "the Secretary and the

Treasurer shall be elected by the Council," so that said Section 2, Article IX shall read:

Sec. 2. The officers except the Councilors shall be elected annually by the House of Delegates. The terms of the Councilors shall be for two years; one half the members of the Council shall be elected each year by vote of the members of the component county societies of the Councilor Districts. All these officers shall serve until their successors are elected and installed.

Amend Article XIII by striking out the entire section and inserting in lieu thereof a new section to read:

Article XIII.—Amendments

The House of Delegates may amend any article of this Constitution by a two thirds vote of the Delegates present at any Annual Session provided that such proposed amendment shall have been presented in open meeting at the previous Annual Session, or by mail to each component society at least two months before any Annual Session, and by publication in two issues of the MISSOURI STATE MEDICAL JOURNAL before the Annual Meeting at which the proposed amendment is to be considered.

ST. LOUIS CLINICS

The annual postgraduate course and clinical conference of the St. Louis Clinics will be held in St. Louis, May 20 to 25.

The Clinics will offer as in former years an intensive course in the various branches of medicine, surgery and surgical specialties. The program will be entirely clinical and will include the most recent advances in medicine and the newest methods of diagnostic technic and therapy as well as reviews of the old methods. The Clinic has customarily been conducted exclusively by members of the St. Louis Clinics but this year the medical officers of the Seventh Corps Area will participate in the conference as an additional feature.

The program will be presented at St. Luke's Hospital, the Missouri Baptist Hospital, St. John's Hospital, Jewish Hospital, St. Mary's Hospital, Deaconess Hospital, Firmin Desloge Hospital, Barnes Hospital, DePaul Hospital and the St. Louis City Isolation Hospital. There will be four evening meetings which be held at the St. Louis Medical Society Building.

Registration for the course may be made in the office of the St. Louis Clinics, 3839 Lindell Boulevard. The fee for registration is \$10.00 which covers all expenses connected with the conference with the exception of living expenses.

BOARD OF ALDERMEN UPHOLD SCIENCE

The public Welfare Committee of the Board of Aldermen of St. Louis are to be

commended on disapproving a bill which would have made it impossible for the medical schools to obtain dogs from the city pound for experimental purposes. The board met with much opposition as there was widespread agitation for its passage although the *St. Louis Post-Dispatch* consistently opposed the bill which would "hold St. Louis up to ridicule in the scientific world."

LEGISLATURE PROVIDES INCREASE OF PHYSICIANS AT STATE HOSPITALS

Of far-reaching benefit to inmates of state institutions and eventually to the people of Missouri is a bill, introduced by Senator Allen McReynolds of Carthage and passed by the legislature, which increases the number of physicians to the medical staffs of the state eleemosynary institutions. Ten will be assigned to the state hospitals, four at St. Joseph, three at Fulton, two at Nevada and one at Farmington. Two will go to the staff of the State School for the Feeble-Minded at Marshall, and two new physicians at the Mt. Vernon Sanatorium will give that institution five assistant physicians. The bill was sponsored in the House by Representative H. P. Lauf of Cole County. "Economy" arguments were raised against it by Representative John D. Taylor of Chariton County.

For a sum estimated by Senator McReynolds at \$25,000 to \$30,000 a year the state through this bill goes a long way toward remedying an outstanding fault in the care it has in the past given to its unfortunates. The medical staffs have been lamentably inadequate. With one physician to each 600 patients it has been physically impossible to give each the sort of care that would most promptly return him to his family and to a responsible position in society. Augmenting the medical staff by ten physicians halves the number of patients each will have to look after and in effect doubles the attention he can give the individual patient.

Obviously, this means better medical care of the inmates while they are in the institution and therefore a more humane discharge of the state's obligation to them. Even more important, it means a more effective discharge of the state's obligation to the families and to itself. Unquestionably the increase in individual attention will shorten the period of hospitalization and increase the

number of patients restored to mental health. Society will regain their services and the state will be spared the cost of prolonged hospitalization. This is a double saving and the finest economy in money and men.

MENTAL HEALTH, AN IMPORTANT PROBLEM TO THE GENERAL PRACTITIONER

A field of vital but too often unrecognized interest to the physician was fittingly placed before the public and the profession in the Mental Health Conference called by the Missouri Society for Mental Hygiene in St. Louis April 26 to 28. The sessions were attended by 500, 700, 800 and even 1000 persons, chiefly, of course, from St. Louis but including many from other parts of the state. The essential part which the physician must play in this urgently needed mobilization of social forces was recognized in a regular meeting of the St. Louis Medical Society addressed by speakers here for the conference. Two of the four principal speakers from other cities were physicians, and the conference itself was held in the St. Louis Medical Society Auditorium.

It is a movement to which the medical profession has much to contribute and from which it has much to gain. As our members were told in the St. Joseph meeting last May, a neurotic background may be found in 50 per cent of patients, "and in 90 per cent of all those who support the fads that flutter on the outskirts of medicine." And the same speaker at the 1934 session ventured that "application of the principles of mental hygiene would save as much misery as would the universal application of physical hygiene and preventive medicine."

Yet the general practitioner is or has been inclined to feel that this is no concern of his. It seems likely that the apathy arises from three factors. In the first place, the field is, despite a long record of scattered effort, essentially new. The physician is not, comparatively speaking, apathetic; rather, he is far ahead of the crowd. But that leaves much to be desired.

For another and more immediate concern, many of the patients who come to him complaining of many ills but actually in need of mental renovation are in the nuisance class. It is quite human to tell them to go home and forget it, or even, on occasion, to go to the deuce. But that hardly aids the patient and certainly it does the physician no good. We

have to revise our conception of "imaginary ills." The ills may be purely mental but the patient's feeling that something is wrong with him, though he may be ridiculously in error in assigning the cause, is anything but mere imagination.

The third factor is the unfortunate fact that in the field of mental health the fences are down to all manner of faddism and dogmatic cults. The reasons are obvious. For one thing, the subject matter is intangible. A lesion of mind or personality is not always subject to pathological examination. For another, some of the basic sciences concerned in mental health, and they are several, are new and have followed divergent courses. The resultant body of knowledge too often appears to the physician in general practice a hodge-podge of conflicting dogmas. Plainly there is need for integration and coordination, the weeding out of fallacies and a colossal amount of fundamental study. But conflict, dogma and the damning tendency to generalize are not unknown in even such old sciences as astronomy and medicine. Where a physician is confronted with them in a medical problem he must fall back on his critical intelligence, his experience and his common sense. Certainties are rarely attained even in such common-place problems as walking across a busy street. Pending their achievement in the field of mental health it is up to the physician in general practice to keep abreast of established and practical fundamentals, to recognize that every patient presents a mental as well as a physical problem, to meet such problems where they lie within his field and to know the available facilities for those that lie in a specialized field. Certainly he cannot afford to ignore them, and certainly the mobilization of social forces for mental health cannot afford to be without his informed cooperation.

CLINIC ABUSE

A resolution directed toward the elimination of free medical service to persons able to pay for medical care was adopted at the St. Joseph Session of the State Medical Association. The resolution directed that all hospitals in the state be contacted and a questionnaire be submitted for their approval or disapproval.

The questionnaire sent each hospital was a copy of the one used by the St. Louis County Hospital, Clayton, and is based on the "certification of the indigent" plan. In

addition to identification of the patient the blank requires him to give full particulars as to his financial condition, the questions being so phrased as to make clear the conditions which make it impossible for the patient to pay although not destitute. The patient makes affidavit to these statements and thus becomes liable to six months' imprisonment or \$500 fine if he makes a false affidavit. Each patient must be referred by a physician.

One hundred forty-one copies of the resolution and questionnaire were mailed to hospitals together with a letter of explanation and request that the institution respond stating whether or not they were willing to adopt such a questionnaire.

Replies were received from thirty-four hospitals. Twenty-two signified that they either were already using a similar blank or would adopt the use of such a questionnaire. Eleven institutions were fraternal, governmental or state and could not use the questionnaire. One small hospital felt its clientele was too small and welfare work too poorly organized to make the use of the questionnaire practicable.

NEWS NOTES

Dr. Edwin H. Schorer, Kansas City, has been appointed Director of Health of Kansas City to succeed Dr. Jabez N. Jackson who died March 18.

The eleventh scientific session of the American Heart Association will be held June 11 at the Hotel Clarridge, Atlantic City. The program will be devoted to various subjects on cardiovascular disease.

The Academy of Physical Medicine will convene June 12 and 13 at the Claridge Hotel, Atlantic City. Dr. Arthur H. Ring, Arlington, Massachusetts, is secretary-treasurer.

The first contracts for construction of buildings at state institutions under the \$10,000,000 bond issue were awarded April 10. The two contracts included an addition to Lloyd Cottage at the Mount Vernon Sanatorium and a dormitory at State Hospital No. 3 at Nevada. Plans and specifications for seven buildings at the Algoa Reformatory were ordered prepared.

Dr. Ralf Hanks, Fulton, was appointed on April 8 as superintendent of State Hospital No. 1 at Fulton to succeed Dr. R. C. Fagley, resigned.

Members of the class graduated in 1910 from the Washington University School of Medicine were guests at the home of Dr. Stanley S. Burns, St. Louis, on March 31. Organization of the class was effected and a reunion was planned for the week of June 10.

Dr. G. W. Vinyard, Jackson, celebrated his eighty-fifth birthday on March 5. Many friends called on him and many presented tokens of their affection and high esteem. All expressed their happiness, which is shared by his friends throughout the state, over his good health.

Dr. Fred T. Foard and Dr. Ernest E. Huber, United States Public Health Service, Washington, D. C., began a survey of the health conditions and the health agencies in St. Louis County April 2. The physicians came at the request of the county court to make recommendations for the more economical operation of the County Health Department.

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

The Calco Chemical Co.
Aminoacetic Acid
The Cutter Laboratory
Diphtheria Toxoid Alum Precipitated, Refined
Lederle Laboratories, Inc.
Scarlet Fever Streptococcus Immunizing Toxin
Scarlet Fever Streptococcus Toxin for the Dick Test
Eli Lilly & Co.
Metycaine Tablets, ½ grain
Ophthalmic Ointment Metycaine, 4 per cent
Parke, Davis & Co.
Capsules Ortal Sodium, 5 grains (0.3 Gm.)
Meningococcus Antitoxin
E. R. Squibb & Sons
Ipral-Amidopyrine Tablets, 4.33 grains
Ipral Sodium
Ipral Sodium Tablets, 4 grains

The fourth St. Louis Educational Week for the Blind is being held at the Municipal Auditorium, St. Louis, April 28 to May 4. The accomplishments of the blind in the fields into which they have been admitted are being demonstrated in an unemotional manner. The various agencies engaged in the eradication of blindness, conservation of vision and work for the betterment of those already sightless are presenting programs to acquaint the public with the work of the respective organizations. Programs are being presented each afternoon in addition to exhibits. A nominally priced lunch is served each day, the proceeds to go toward defraying the expense of the exposition.

Dr. Edward A. Doisy, St. Louis, professor of chemistry, St. Louis University School of Medicine, was presented with a medal and certificate of award for meritorious scientific contributions by the St. Louis Medical Society on March 19. The award was made for his work on the female sex hormones. The award was established by the St. Louis Medical Society in 1925 and the recipient must be jointly recommended by the medical faculties of both St. Louis and Washington universities and must be unanimously elected by open vote of the council of the Society at the annual meeting. In 1927, the last time the award was made, the medal was presented to Drs. Evart A. Graham, G. H. Copher, Warren H. Cole and Sherwood Moore, St. Louis, for their work in gallbladder visualization.

The American Medical Golfing Association will hold its twenty-first annual tournament at the Northfield Country Club, Atlantic City, Monday, June 10. Thirty-six holes will be played in competition for the seventy trophies and prizes in the nine events. Trophies will be awarded as follow: Will Walter Trophy for the Association championship, thirty-six holes gross; the Detroit Trophy for the Association handicap championship, thirty-six holes net; St. Louis Trophy for the championship flight first gross, thirty-six holes; President's Trophy for the championship flight, first net, thirty-six holes; Golden State Trophy for the eighteen hole championship; Ben Thomas Trophy for the eighteen hole handicap championship; Minneapolis Trophy for the maturity event, limited to fellows over 60 years of age; Wendell Phillips Trophy for the Old Guard championship, limited to competition of past presidents, and the Wisconsin Trophy

for the kickers handicap. All male fellows of the American Medical Association are eligible to become members of the A. M. G. A. Application blanks may be obtained by writing the secretary, Bill Burns, 4421 Woodward Avenue, Detroit. Participants in the A. M. G. A. tournament are required to furnish their home club handicap, signed by the secretary. No handicap over twenty-five is allowed except in the kickers' handicap. Only active members of the A. M. G. A. may compete for prizes and no trophy will be awarded a fellow who is absent from the annual dinner.

The following members responded to invitations of the Committee on Cancer of the State Medical Association to deliver addresses and conduct clinics on cancer at recent meetings of Councilor Districts:

Drs. David S. Dann and Elmer D. Twyman, Kansas City, and Dr. Floyd H. Spencer, St. Joseph, were the guests of the Twelfth Councilor District at Excelsior Springs on January 17.

The Thirtieth District had as its guests at Clayton, February 13, Drs. Sam Gray, Fred Emmert and A. N. Arneson, St. Louis.

On February 26 the Twenty-Eighth Councilor District met at Aurora with Drs. E. Kip Robinson, David S. Dann and Ferdinand C. Helwig, Kansas City, as guests.

Guests of the Twenty-Second and Twenty-Third Councilor Districts at a meeting at Portageville on March 7 were Drs. William D. Collier, E. Lee Dorsett and P. C. Schnoebelen, St. Louis.

Drs. Elmer D. Twyman, Robert Koritschoner and David S. Dann, Kansas City, were guests of the Fifteenth Councilor District at Warrensburg on March 19.

OBITUARY

JOHN CALVIN YOUNG, M.D.

Dr. J. C. Young, Ozark, a graduate of the St. Louis College of Physicians and Surgeons, 1898, died of heart disease at his home December 6, 1934, aged 74 years.

Dr. Young was born in Clay County, West Virginia, and moved to Greene County, Missouri, in 1882. After completing his medical studies he began his practice in Ozark where he remained until his death.

He became allied with organized medicine early in his practice and served the Ozark County Medical Society loyally. He was delegate to the State Meeting in 1925 and 1927; was alternate in 1928, served as president of his county medical society in 1927 and as vice president in 1933.

Dr. Young is survived by his widow, Mrs. Mary Taylor Young, one son, four brothers and four sisters.

ELISHA WHITTEN TINSLEY, M.D.

Dr. E. W. Tinsley, Montgomery City, a graduate of the Hospital College of Medicine, Louisville, Kentucky, 1889, died in the Audrain County Hospital, Mexico, November 28, 1934, aged 68 years.

Dr. Tinsley was born in Pike County and received his early education in the public schools and in Watson's Seminary at Ashley. After his medical work he began his practice in Gamma where he remained for seven years but about that time his health became impaired and he moved to Texas, practicing in Hereford for five years. In 1903 he went to Montgomery City and remained in practice there until his death.

He became a member of organized medicine early in his career and was ever a loyal supporter of the profession. He had acted as health officer and county physician for Montgomery County since 1920.

Dr. Tinsley held to the highest professional standards and ethics and all who knew him esteemed him highly not only as a physician of ability but as a man of genuine personal worth and a citizen loyal to the best interests of the community.

He is survived by his widow, Mrs. Allie Tinsley, one brother and one sister.

DAVID ULYSSES SHERMAN, M.D.

Dr. David U. Sherman, aged 63 years, for twenty-eight years a practicing physician and surgeon in Springfield, died on January 22, 1935. He had been in poor health for more than two years suffering from a circulatory ailment. He went to the hospital on January 2 with a fractured hip.

Dr. Sherman was born September 29, 1871, on his father's farm three miles west of Fordland, Missouri. He spent his youth on the farm and attended the Henderson Academy in Henderson, Missouri. He married Miss Julia B. Gault on September 12, 1895.

Dr. Sherman was graduated from the Beaumont Hospital Medical College in 1898 and did postgraduate work at the Postgraduate School and Hospital of Chicago in 1906. He practiced at Elwood, Missouri, for eight years before moving to Springfield.

He was a member of the St. Paul's Methodist Church, the University Club, the Springfield Lodge No. 218 I. O. O. F., United Lodge A. F. and A. M., the Joplin Consistory and was a life member of Abou Ben Adhem Shrine. He was a loyal member of organized medicine.

He is survived by his widow, Mrs. Julia B. Sherman, and one son, David O. Sherman, an instructor in the Springfield Senior High School.

In the death of Dr. Sherman the community has lost a valuable citizen and the medical profession a valuable member.

W. P. PATTERSON, M.D.
WM. R. BEATIE, M.D.
Committee.

WALTER C. HAMILTON, M.D.

Dr. W. C. Hamilton, Kearney, a graduate of the Kansas City Medical College, 1878, died at his home December 25, 1934, aged 80 years.

Dr. Hamilton was born in Ray County where he received his early education. For a time he taught in the schools in Ray and Clay counties but he soon followed in the footsteps of his father and began the study of medicine.

He had spent fifty-six years in the practice of medicine and has left two sons who are carrying on this service, Dr. Buford Hamilton, Kansas City, and

Dr. Robert Hamilton, Indiana Harbor, Indiana. He is survived also by his widow, one daughter, two brothers and three sisters.

Dr. Hamilton was a loyal member of organized medicine. He served the Clay County Medical Society as vice president, president and delegate. He was elected an honor member of the Society in May, 1934.

OWEN A. SMITH, M.D.

Dr. O. A. Smith, Farmington, a graduate of Washington University School of Medicine, 1892, died at his home after an illness of several months on December 2, 1934, aged 66 years. He was born in Jerseyville, Illinois.

After completing his medical education he remained in Missouri and practiced in several towns. In 1901 he took postgraduate work in New York specializing in eye, ear, nose and throat diseases then located in Farmington and remained there in practice except for time spent in postgraduate work in his chosen field and in the army during the World War.

Dr. Smith was the recipient of certificates from the American Board of Otolaryngology in 1921 and in 1927. For many years he was on the staff of the Missouri Commission for the Blind.

From 1926 to 1929 Dr. Smith served the St. Francois-Iron-Madison-Washington-Reynolds County Medical Society as president and was delegate to several State Medical Meetings. He was at one time Councilor of the Twenty-Fifth District.

Dr. Smith is survived by his widow, Mrs. Nellie Swink Smith, two sons, five grandchildren, and a brother, Dr. U. S. Smith, Hannibal.

CHARLES LUCIEN LAVENDER, M.D.

Dr. Charles L. Lavender, Columbia, a graduate of the Missouri Medical College in 1885, died at his home, December 3, 1934, aged 75 years. He had been in failing health for several years.

Dr. Lavender was born in Franklin County, Virginia, and soon after the Civil War moved with his family to Missouri. Following his graduation in medicine he began practice in Marthasville. He served a number of terms as county coroner of Warren County, was surgeon for the M. K. and T. Railroad and was physician in charge of the Emmaus Hospital near Marthasville.

About ten years ago Dr. Lavender retired and moved to Columbia. He became a member of the Boone County Medical Society and in 1928 was elected an honor member.

He is survived by his widow, Mrs. Eliza Guthrie Lavender, a son, five brothers and two sisters.

George A. Williams and Robert L. Williams, Atlanta, Ga. (Journal A. M. A., April 6, 1935), point out that the administration of insulin to a poorly developed nondiabetic girl 8½ years of age resulted in striking acceleration of body growth and sexual development. This was manifested by increase in height and weight, stimulation of the mammary glands, ovaries and uterus, assumption of the adult type of fat distribution, and a growth of fine body hair. Discontinuance of insulin was followed by prompt regression of secondary sexual phenomena. Body growth continued, but at a less rapid rate. Resumption of insulin after a lapse of ten months resulted in prompt reappearance of the sexual phenomena, to regress as soon as insulin was again omitted.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1935

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Ste. Genevieve County Medical Society,
December 12, 1934.

Chariton County Medical Society, Janu-
ary 3, 1935.

Perry County Medical Society, January 4,
1935.

Moniteau County Medical Society, Janu-
ary 10, 1935.

Camden County Medical Society, Febru-
ary 26, 1935.

Schuyler County Medical Society, March
18, 1935.

Lewis County Medical Society, April 2,
1935.

BUCHANAN COUNTY MEDICAL SOCIETY

The Buchanan County Medical Society was called to order in the Missouri Methodist Hospital at 8 p. m. by the president, Dr. E. F. Cook, March 6, with thirty members present.

Dr. E. M. Shores, St. Joseph, presented a resumé of the literature on "Pneumothorax in the Treatment of Pulmonary Tuberculosis." He handled his subject in an interesting and capable manner and it was well received. Following the presentation the paper was discussed by Drs. H. Peterson, L. H. Fuson, C. A. Good, A. E. Burgher, J. T. Stamey and R. M. Waller.

Dr. Willard Proud reported a case of laryngeal tuberculosis which had had an injection of the superior laryngeal nerve for the attending dysphagia.

A motion was adopted to instruct the library committee to provide a place for the Jacob Geiger Library and to appear before the court and inform it that a place had been provided. A motion was passed that the library committee meet all the requirements of the will of Dr. Jacob Geiger with reference to the library.

On motion Dr. W. T. Stacy was requested to investigate the cost of printing the by-laws and report at the next meeting.

A resolution concerning the recommendations of the American Medical Association House of Delegates relative the recent attempts to pass laws providing for regulation of medical subjects by law groups was presented to the Society and adopted.

Dr. J. M. Hughes suggested that a speakers' committee be appointed to handle the presentation of appropriate subjects to various organizations.

EARL WHITSELL, M.D., Secretary.

CAPE GIRARDEAU COUNTY MEDICAL SOCIETY

The Cape Girardeau County Medical Society met in the Chamber of Commerce rooms at Cape Girardeau, March 11, at 8 p. m., Dr. D. I. L. Seabaugh, Jackson, president, in the chair. Other members present were Drs. O. L. Seabaugh, H. V. Ashley, J. H. Cochran,

N. F. Chostner, G. J. Tygett, J. J. Drace and C. A. W. Zimmermann, Cape Girardeau.

A communication from a chemical company offering to show a moving picture film on malaria was read. A motion was made by Dr. J. H. Cochran and seconded by Dr. H. V. Ashley that the communication be tabled for the present. Carried.

Dr. J. H. Cochran of the legislative committee reported that a bill in the legislature to register physicians annually was killed and that other prospective unfavorable legislation was being watched by representatives of the profession.

Dr. J. H. Cochran, chairman of the program committee, announced the acceptance of Dr. G. D. Royston, St. Louis, of an invitation to deliver an address at the annual banquet meeting on April 8. Dr. Royston will speak on "Trauma During Labor." Dr. D. I. L. Seabaugh appointed Drs. H. V. Ashley and G. J. Tygett a committee on arrangements for the meeting on April 8.

Dr. N. F. Chostner read an excellent paper on "Pneumonia." A general discussion followed.

C. A. W. ZIMMERMANN, M.D., Secretary.

CASS COUNTY MEDICAL SOCIETY

The Cass County Medical Society met in regular quarterly session at Harrisonville at 7:30 p. m., March 14, Dr. William Beckman, Strasburg, president, in the chair.

The Society endorsed the action of the House of Delegates of the American Medical Association in special session February 15-16.

Dr. L. J. Schofield, Warrensburg, announced a public meeting to be held at the court house, Warrensburg, at 8 p. m. March 19 at which the subject of cancer will be discussed by able speakers.

The following papers were read and discussed:

"The Legitimate Use of Suggestion and Placebos in the Practice of Medicine," Dr. T. W. Adair, Archie.

"Carcinoma of the Cervix," Dr. L. V. Murray, Pleasant Hill.

"Medical Economics; Contract Practice; State Medicine, Sickness Insurance, etc.," Dr. M. P. Overholser, Harrisonville.

In the transitional stage through which our country is now passing, the subject of medical economics is probably receiving more concern and study by American physicians than ever before and at this meeting certain phases of medical economics were discussed at greater length than were the scientific papers.

The secretary was instructed to write the Bureau of Medical Economics of the American Medical Association for a plan best adapted to meet the conditions and problems that are encountered in communities such as Cass County.

Dr. Murray made a motion which carried that the secretary secure information concerning the examination of 4H Club members.

Drs. L. J. Schofield and W. E. Johnson, Warrensburg, were guests.

J. S. TRIPLETT, M.D., Secretary.

GREENE COUNTY MEDICAL SOCIETY

The Greene County Medical Society met in the public library in Springfield, February 22, with Dr. Wallis Smith, president, in the chair.

The necrology committee submitted a resolution on the life of Dr. D. U. Sherman which was adopted.

Applications for membership were presented by Drs.

L. M. Rigney and John W. Williams and both were elected to membership.

The activities of the Society and the State Association in regard to medical relief were discussed. The following motion was made and passed:

That the Greene County Medical Society urge the officers of the State Association to contact at once the FERA administrator in Missouri and to use every means at their command to have set up in this state a medical director in the FERA organization and to further insist that medical relief of the unemployed be carried on exclusively by the FERA through agreement with organized medical societies to the end that patient-physician relationship shall remain intact. That our committee on public health and legislation be instructed to exert every effort to bring about this type of medical relief both in the state and in our own county. That a copy of this motion be forwarded immediately to the Secretary of the State Association.

The scientific program consisted of an illustrated paper on "The Diagnosis and Pathology of Diseases of the Kidneys" by Dr. Frederick Narr, Kansas City. The paper brought forth much discussion.

Meeting of March 1

A special meeting was held at the public library, March 1, Dr. Wallis Smith, president, in the chair.

Dr. Smith explained that the purpose of the meeting was to consider state medicine through the national program. Dr. Paul Cole, Springfield, presented a resolution endorsing the action of the House of Delegates of the American Medical Association, February 15, and moved the adoption of the resolution. The motion was seconded by Dr. W. J. Wills, Springfield. After considerable discussion the motion carried.

Meeting of March 22

The Society convened March 22 with the president in the chair.

A motion was made by Dr. W. P. Patterson, Springfield, and duly seconded recommending Dr. W. R. Summers for reciprocity to Kentucky.

The scientific program consisted of a most interesting and instructive talk by Dr. Frank Teachenor, Kansas City, on "Brain Injury."

Dr. Meyer Weiner, St. Louis, spoke on "Plastic Surgery of the Eye."

Both papers, dealing so intimately with modern accidents, caused a great deal of discussion.

J. W. WILLIAMS, M.D., Secretary.

HENRY COUNTY MEDICAL SOCIETY

The Henry County Medical Society met at Clinton, March 15 with the following members present: Drs. J. R. Hampton, R. S. Hollingsworth, S. B. Hughes, E. C. Peelor, G. S. Walker and S. W. Woltzen, Clinton, and J. J. Russell, Deepwater. Visitors were Drs. C. T. Ryland, Lexington; W. A. Braecklein, Higginsville, and L. J. Schofield and O. B. Hall, Warrensburg.

Luncheon was served at the Coffee Shop preceding the meeting, which was held at the office of Dr. G. S. Walker, who presided.

Dr. Ryland gave an interesting talk on "Medical Economics" followed by discussions by Drs. Braecklein, Schofield and Hall.

The members of the Society expressed hearty approval of what had been said by the speakers and all determined to attend meetings more regularly and to strive to make the Society a success.

The report of the Reference Committee of the House of Delegates of the American Medical Association was approved and the secretary was instructed to notify the State Association.

The following officers were elected: President, Dr.

G. S. Walker, Clinton; secretary-treasurer, Dr. S. W. Woltzen, Clinton; delegate, Dr. G. S. Walker, Clinton, and alternate, Dr. S. W. Woltzen, Clinton.

Dr. H. W. Insley, formerly of Rich Hill, has moved to Kansas.

Dr. James O. Smith was elected to membership.
S. W. WOLTZEN, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society met March 5 with eight members and one visitor present.

A communication from the Winthrop Chemical Company extending the Society an invitation to use the motion picture "Malaria" was read. It was voted that this picture be presented at a date to correspond with the program arrangement.

Dr. J. L. Sims presented a case of a woman who forty-eight hours after delivery had a severe chill, temperature 101 but subsiding in twelve hours. Dr. S. H. Miller suggested that the chill was due to breast milk starting to appear.

Dr. S. A. Grantham, Jr., reported a case of a woman who fell from a truck and became unconscious; received emergency treatment in a hospital and was later sent home. On her way home she became unconscious again. He was called to the home to see her and during the next twenty-four hours her coma became more profound. She was taken to the hospital for roentgen ray which revealed stellate fracture in the right anterior temple region. A decompression was done and hemorrhage was found from the anterior branch of the middle meningeal.

Dr. A. B. Clark discussed a mental case with marked swelling and redness in one thumb.

Dr. B. E. DeTar reported a case of osteomyelitis of the os calcis, the original injury having been received twenty years prior to any difficulty.

Dr. S. A. Grantham, Jr., made a few remarks regarding the history of medicine west of the Mississippi River with special regard to Jasper County.

Dr. W. S. Loveland read "The Treatment of Ovarian Dropsy" as found in a textbook printed in 1852.

Dr. A. B. Clark suggested that the Society pay more attention to the laws with regard to honor members and stated that it had been a rule of the Society for the last twenty years to make members who had passed their seventieth birthdays honor members and remit their dues. This question was brought up concerning Dr. S. H. Miller who has been in this class for two years and has paid his dues during that time.

Meeting of March 12

The Society met March 12 with seventeen members present.

Correspondence from Dewey Short, member of Congress, and Allan McReynolds, member of the Missouri Senate, was read. These letters were in response to letters sent them by the Society regarding socialization of medicine. Both men expressed their opposition to the proposed legislation.

A letter from J. A. Laws, Jr., of the Hotel Connor was read inviting the Society to meet at the hotel in the future, there being no charge for the meeting room. Dr. J. W. Barson moved that the hospitality of the Connor Hotel be accepted; seconded and carried.

Dr. J. E. Douglass, Webb City, moved that the Society extend a vote of appreciation to the American Legion for permitting the Society to meet in their rooms during the last two years; seconded and carried.

It was decided to have Dr. S. X. Cordonnier, Carthage, reapply for admission on payment of 1935

dues as he had been dropped for nonpayment of 1933 and 1934 dues.

Dr. Ed. James moved that a dinner meeting be held at the next regular meeting in honor of Dr. E. Lee Miller, Kansas City, who will be the guest speaker. Seconded and carried.

The president appointed Drs. Albert Chenoweth, Ed. James and A. B. Clark an entertainment committee to act during the remainder of the year.

Dr. B. E. DeTar presented a paper on "Acute Abdominal Surgery With Summary of These Cases for 1934 and 1935." The paper was discussed by Drs. J. W. Barson, S. A. Grantham, Sr., S. A. Grantham, Jr., and W. M. Kinney; closed by Dr. DeTar.

Meeting of March 20

A dinner meeting was held at the Connor Hotel, March 20.

The meeting was called to order by the president, Dr. W. S. Loveland, and Dr. J. W. Hardy introduced the guest of the evening, Dr. E. Lee Miller, Kansas City.

Dr. Miller gave a valuable talk on "Appendicitis," discussing in detail the dangers of certain types of cases and the importance of early diagnosis and operation.

JOHN W. HARDY, M.D., Secretary.

PERRY COUNTY MEDICAL SOCIETY

The Perry County Medical Society met in the office of Dr. O. A. Carron, Perryville, March 6, with Dr. Carron, president, in the chair.

A word of welcome was given Dr. Bernard T. Koon as a new practitioner in the community.

A letter drawn up by the secretary in protest to the passage of House Bills 174, 300 and 388 was read and sanctioned by the Society, a copy of this letter to be sent to the Senator from the 26th district.

A resolution and amendment to the by-laws protesting the irregulars of the medical profession in the community was drawn up and passed.

Dr. G. A. Blaylock, Perryville, was elected delegate and Dr. Jerome J. Bredall, Perryville, alternate to the next State Meeting.

A motion picture on "Malaria" furnished by the Winthrop Chemical Company will be shown at the local theater sponsored by the Society, the date to be announced later.

Election of officers for the ensuing year resulted in the reelection of Dr. O. A. Carron, Perryville, as president, and Dr. Jerome J. Bredall, Perryville, as secretary.

The next meeting will be held in the office of Dr. G. A. Blaylock, Perryville, at 8:15 p. m., June 12.

JEROME J. BREDALL, M.D., Secretary.

PETTIS COUNTY MEDICAL SOCIETY

The Pettis County Medical Society held a dinner meeting at the Bothwell Memorial Hospital at Sedalia, March 18, with twenty-four members and guests present. Dr. W. T. Bishop, Sedalia, president, was in the chair.

A discussion was held on the means of controlling the present German measles epidemic in Sedalia.

The Society voted its unanimous disapproval of H. B. 174, H. B. 300 and H. B. 388 now being introduced in the General Assembly and resolutions noting same were sent to the local senator and representative.

Dr. L. A. Calkins, Kansas City, Missouri, and Dr. H. L. Gainey, Kansas City, Kansas, both of the department of obstetrics and gynecology of the University of Kansas, presented interesting and instructive

papers on "The Treatment of Menorrhagia," and "The Use and Abuse of Cesarean Section."

After a general discussion the meeting adjourned.

GORDON STAUFFACHER, M.D., Secretary.

RANDOLPH-MONROE COUNTY MEDICAL SOCIETY

The Randolph-Monroe County Medical Society met February 12 at 8:30 p. m. in the public library at Moberly. The meeting was called to order by the president, Dr. C. C. Smith.

The new Red Cross nurse, Miss Marion Clare, was introduced to the Society by the president. An outline of the work of the nurse in the community was read by Miss Clare and a copy of the standing orders of Red Cross nursing was left with the president for examination and approval.

Mr. E. H. Bartelsmeyer, St. Louis, spoke on "State Medicine." A general discussion followed. It was moved that the Society go on record as supporting the actions of the State Association regarding the question of so-called state medicine.

Following the meeting a lunch was served at Miller's Café.

Meeting of March 12

The Society met March 12 at the public library at Moberly. Dr. C. C. Smith, president, called the meeting to order.

Dr. J. Curtis Lyter, St. Louis, spoke on "Angina Pectoris of Effort."

Dr. A. W. Greene, Columbia, gave a short talk followed by a general discussion.

MAX E. KAISER, M.D., Secretary.

SCHUYLER COUNTY MEDICAL SOCIETY

The Schuyler County Medical Society met in regular annual session at the office of Dr. A. J. Drake, Lancaster, March 13. Dr. Ida M. Nulton, Lancaster, president, called the meeting to order with the following present: Drs. Ida M. Nulton, J. H. Keller, A. J. Drake, Lancaster, and K. E. Gerwig and J. B. Bridges, Downing.

A letter from Dr. J. S. Gashwiler, Novinger, secretary of the Adair County Medical Society, was read stating among other matters that the Adair County Medical Society had voted to receive the Schuyler County Medical Society to membership in their Society. The matter was discussed and a motion was made by Dr. H. E. Gerwig and seconded by Dr. J. H. Keller that the proposition be accepted with the proviso, as understood, that the Schuyler County Medical Society still be entitled to a delegate. The motion carried unanimously.

The balance in the treasury was presented to Dr. J. B. Bridges as an appreciation for the good and faithful services he has rendered the Society for the last twenty-three years.

Dr. Nulton reported a case of acute Bright's disease with albuminuria and high blood pressure in a woman aged 22 years. She had been previously healthy, was teaching school and became involved in a difficulty with a family and all the cause she could give for the trouble was shock from fright.

Dr. J. B. Bridges reported a case of severe eclampsia and loss of sight in a woman aged 38 who had previously suffered from measles and influenza. The convulsions lasted about thirty-six hours and the vision gradually returned in a few days. This was caused by nephritis, the urine being heavily loaded with albumin.

J. B. BRIDGES, M.D., Secretary.

MISSOURI STATE MEDICAL ASSOCIATION

78th Annual Meeting, Elms Hotel, Excelsior Springs

The 78th Annual Meeting of the Association convenes at Excelsior Springs, Monday, Tuesday, Wednesday and Thursday, May 6, 7, 8 and 9.

HOUSE OF DELEGATES

Ballroom, Elms Hotel

First Meeting—Monday, May 6, 1935—9:30 A. M.

Order of Business

Roll Call.
Reading of Minutes of Previous Meeting.
Reading of President's Message and Recommendations.
Appointment of Reference Committees—
 Committee on Amendments to the Constitution and By-Laws.
 Committee on Resolutions.
 Committee on Miscellaneous Affairs.
Report of the General Committee on Arrangements: Spence Redman, Platte City, Chairman.
Report of the Local Committee on Arrangements: Joseph Dauksys, Excelsior Springs, Chairman.
Report of Secretary.
Report of Treasurer.
Report of Committee on Scientific Work: E. J. Goodwin, St. Louis, Chairman.
Report of Committee on Public Policy: J. F. Harrison, Mexico, Chairman.
Report of Committee on Publication: J. C. B. Davis, Willow Springs, Chairman.
Report of Committee on Defense: C. E. Hyndman, St. Louis, Chairman.
Report of Committee on Medical Education and Hospitals: R. A. Woolsey, St. Louis, Chairman.
Report of Committee on Cancer: Ellis Fischel, St. Louis, Chairman.
Report of Committee on Postgraduate Course: C. H. Neilson, St. Louis, Chairman.
Report of Committee on Mental Health: G. Wilse Robinson, Sr., Kansas City, Chairman.
Report of Committee on Medical Economics: Joseph W. Love, Springfield, Chairman.
Report of Special Committees—
 Committee on Constitution and By-Laws: M. P. Overholser, Harrisonville, Chairman.
 McAlester Memorial Foundation, A. R. McComas, Sturgeon, Chairman.
 Committee on Medical-Legal Affairs: W. L. Allee, Eldon, Chairman.
Appointment of Committee of Nominations.
Unfinished Business.

Recess till 3:00 P. M.

Report of the Council: A. R. McComas, Sturgeon, Chairman.
Report of Reference Committees—
 Committee on Amendments to the Constitution and By-Laws.
 Committee on Resolutions.
 Committee on Miscellaneous Affairs.
New Business (Resolutions, Memorials, etc.).
Selection of Place of Next Meeting.

Second Meeting, Wednesday, May 8, 1935—8:00 A. M.

Clubroom, Elms Hotel

Roll Call.
Reading of Minutes.
Election of Officers—
 Election of President-Elect.
 Report of Committee on Nominations.
Installation of President.
Nominations for Standing Committees by President and Confirmation by House of Delegates.
Unfinished Business.

GENERAL MEETING

Monday, May 6, 1935—8:00 P. M. Ballroom, Elms Hotel

The Rôle of Physical Therapy in Medicine Today...A. J. Kotkis, M.D., St. Louis
Physical Therapy in Chronic Arthritis.....J. S. Coulter, M.D., Chicago

GENERAL MEETING

Tuesday, May 7, 1935—8:30 A. M. Ballroom, Elms Hotel

Address of the President.....C. T. Ryland, M.D., Lexington
Address of the President-Elect, The Doctor of Tomorrow.....
.....E. Lee Miller, M.D., Kansas City
Chronic Pyelonephritis in Infants and Children...John R. Caulk, M.D., St. Louis
The Problems of Painless Urological Instrumentation.....
.....Grayson Carroll, M.D., St. Louis
Tuberculosis of the Genito-Urinary Tract.....C. E. Burford, M.D., St. Louis
Complications Developing After Operation for Rectal Fistula.....
.....Warren R. Rainey, M.D., St. Louis
New Developments in Renal Surgery: With Motion Picture Demonstration
.....Oswald S. Lowsley, M.D., New York
Prostatic Enucleations Compared to the Transurethral Resections.....
.....R. Lee Hoffmann, M.D., Kansas City
Urinary Incontinence.....D. K. Rose, M.D., St. Louis

GENERAL MEETING

Tuesday, May 7, 1935—1:30 P. M. Ballroom, Elms Hotel

Carbontetrachloride Poisoning: Experimental Data and Two Clinical Cases
With Necropsy Findings.....Emsley T. Johnson, M.D., Kansas City
Heart Disease in Children.....Harry M. Gilkey, M.D., Kansas City
Quinidine Sulphate: Its Actions and Uses...Peter T. Bohan, M.D., Kansas City
Differential Diagnosis and Treatment of Chronic Appendicitis.....
.....Warren H. Cole, M.D., St. Louis
Tumors in the Head of the Pancreas: The Value of Cholecystenterostomy
.....W. T. Coughlin, M.D., and J. M. McCaughan, M.D., St. Louis
Cesarean Section: A Discussion of Its Indications and Incidence in the
St. Louis Maternity Hospital.....
.....Otto Schwarz, M.D., and Richard Paddock, M.D., St. Louis
Diagnosis and Surgical Management of Cancer of the Stomach.....
.....Claude J. Hunt, M.D., Kansas City
Early Diagnosis in Obscure Abdominal Diseases.....
.....Fred W. Bailey, M.D., St. Louis
Hydrocephalus.....Wm. J. Gallagher, M.D., St. Louis
Unusual Case of Foreign Body in the Abdomen....Roland Hill, M.D., St. Louis

GENERAL MEETING

Tuesday, May 7, 1935—8:00 P. M. Ballroom, Elms Hotel

American Medical Association: Motion Picture.....
.....Austin A. Hayden, M.D., Chicago
Medical Care for the American People.....R. G. Leland, M.D., Chicago
Discussion by Dr. E. P. Heller, Kansas City, and Dr. Carl F. Vohs, St. Louis.

GENERAL MEETING

Wednesday, May 8, 1935—9:00 A. M. Ballroom, Elms Hotel

- Pneumothorax Treatment of Lobar Pneumonia.....
.....John J. Hammond, M.D., St. Louis
- Diagnosis and Nonsurgical Treatment of Bronchiectasis.....
.....Sam Snider, M.D., Kansas City
- Principles of Safety in Thyroid Surgery.... Charles F. Sherwin, M.D., St. Louis
- Treatment of the Diseases of the Nasal Sinuses in Infants and Young
Children.....L. W. Dean, M.D., St. Louis
- The Application of Ovarian Therapy to Nose and Throat Surgery.....
.....Evan S. Connell, M.D., Kansas City
- Treatment of Chronic Arthritis.....Ralph A. Kinsella, M.D., St. Louis
- Diagnosis and Treatment of Acute and Chronic Osteomyelitis.....
.....J. Albert Key, M.D., St. Louis
- Adrenal Hypercortical and Hypermedullary Syndromes.....
.....August A. Werner, M.D., St. Louis

GENERAL MEETING

Wednesday, May 8, 1935—1:30 P. M. Ballroom, Elms Hotel

- Radiation Therapy in the Treatment of Disease.....
.....C. Edgar Virden, M.D., Kansas City
- Hereditary Blindness in Missouri.....Harvey D. Lamb, M.D., St. Louis
- Heat in the Treatment of Somatic Syphilis.....
.....Charles C. Dennie, M.D., Kansas City
- Fracture of the Neck of the Femur.....Frank D. Dickson, M.D., Kansas City
- The Changing Practices in Infant Feeding.... Frank C. Neff, M.D., Kansas City
- Preliminary Stage of Labor.....Buford G. Hamilton, M.D., Kansas City
- Practical Factors in Development of Psychoses.....
.....G. Wilse Robinson, M.D., Kansas City
- Pernicious Anemia.....George E. Knappenberger, M.D., Kansas City
- Complications of Appendicitis: Report of Cases.....
.....John W. Stewart, M.D., St. Louis
- Schuller-Christian Disease.....Joseph Dauksys, M.D., Excelsior Springs

GENERAL MEETING

Thursday, May 9, 1935—8:30 A. M. Ballroom, Elms Hotel

- Thoracogabus in a Case of Otherwise Normal Twins.....
.....E. J. Nienstedt, M.D., Blodgett
- Encephalitis.....G. O. Broun, M.D., St. Louis
- Clinical Manifestations of Anorectal Diseases.....
.....George H. Thiele, M.D., Kansas City
- An Institutional Outbreak of Shiga Dysentery and Its Control.....
.....T. S. Lapp, M.D., Fulton

10:30 A. M. Veterans' Hospital

- Presentation of Clinical Material.....
.....Clay County Medical Society, Dr. Joseph Dauksys, presiding

GENERAL MEETING

Thursday, May 9, 1935—9:30 A. M. and 1:30 P. M.

Under the Auspices of the Kansas City Society of Ophthalmology and
Otolaryngology in Cooperation With the Ophthalmic Section of the
St. Louis Medical Society and the St. Louis Ophthalmic Society
Dr. Robert L. Forgrave, St. Joseph, Presiding

Morning Session, 9:30 A. M. Veterans' Hospital

Ophthalmic Diagnostic Clinic.....C. S. O'Brien, M.D., Iowa City
Industrial Ophthalmology: With Demonstration of Malingering Tests....
.....Roy E. Mason, M.D., St. Louis

Afternoon Session, 1:30 P. M. Ballroom, Elms Hotel

The Problem of the Ethmoid.....J. H. Timberman, M.D., Chillicothe
Myasthenia Gravis.....J. S. Summers, M.D., Jefferson City
The Reaction of Allergic Phenomena to Ionization.....
.....Arthur M. Alden, M.D., St. Louis
Treatment of Cataract in Diabetic Patients.....W. C. Cheek, M.D., Springfield
Ocular Tuberculosis.....C. S. O'Brien, M.D., Iowa City
Bronchoscopy: A Diagnostic Aid.....J. S. Knight, M.D., Kansas City
Injuries of the Skull.....Frank R. Teachenor, M.D., Kansas City
Impaired Hearing.....Sam E. Roberts, M.D., Kansas City
Diagnosis and Treatment of Imaginary Diseases of the Ear, Nose and Throat
.....Oliver Gilliland, M.D., Kansas City

SCIENTIFIC EXHIBITS

Photographic Exhibits of Pathological Specimens in Colors.....
Department of Pathology, St. Joseph Hospital, Kansas City, Emsley T.
Johnson, M.D., Pathologist, Marion Ellis, Artist Photographer
Bone Tumors
....Ira H. Lockwood, M.D., and Fred Y. Kuhlman, M.D., Kansas City
Thrush Infections of the Skin and the Mucous Membranes.....
.....Thomas B. Hall, M.D., Kansas City
Surgical and Autopsy Specimens.....Members of the Department of Pathology,
University of Missouri, M. Pinson Neal, M.D., Columbia
Clinical and Pathological Residual Effects of Warfare Gassing.....
Veterans Administration, Medical and Hospital Service, Philip B. Matz,
M.D., Excelsior Springs
Bronchogenic Carcinoma: Effect of Radiotherapy in Some Cases of Malignancy.....Department of Roentgenology and Radiology, University of
Kansas, and Bell Memorial Hospital, Kansas City, Kansas, Galen M.
Tice, M.D., Resident Radiologist
Paget's Disease and Osteogenic Sarcoma....Veterans Administration Facility,
Department of Roentgenology, Joseph Dauksys, M.D., Excelsior Springs
Tuberculin Tests and Explanation of Use.....
.....Herbert L. Mantz, M.D., Kansas City
Clinical Demonstration of Fractures.....Frank D. Dickson, M.D., Kansas
City; Wm. J. Stewart, M.D., Columbia; Jacob Kulowski, M.D., St. Joseph;
James Weaver, M.D., Kansas City; James Elliott, M.D., Kansas City;
Rex L. Diveley, M.D., Kansas City, and Duncan McKeever, M.D.,
Kansas City
Diagnosis and Treatment of Common Anorectal Diseases: Motion Picture
Demonstration.....Fred B. Campbell, M.D., Kansas City
Missouri Academy of Science.....M. Pinson Neal, M.D., Columbia
Cancer.....Committee on Cancer, Missouri State Medical Association; Mis-
souri State Committee of the American Society for the Control of Cancer;
Missouri State Board of Health; Tumor Clinic, State Hospital No. 1,
Fulton; Tumor Clinic, Menorah Hospital, Kansas City; Barnard Free
Skin and Cancer Hospital, St. Louis

COMMERCIAL EXHIBITS

Lobby, Elms Hotel

MEAD JOHNSON & COMPANY, EVANSVILLE, INDIANA, Booth 1.

Mead Johnson & Company has on exhibit its complete line of infant diet materials including Dextri-Maltose Nos. 1, 2 and 3, Dextri-Maltose with Vitamin B, Mead's Standardized Cod Liver Oil, Mead's Viosterol in Oil, Mead's Cod Liver Oil with Viosterol, Mead's Viosterol in Halibut Liver Oil (liquid and capsules), Mead's Halibut Liver Oil, Mead's Brewers Yeast (tablets and powder), Pablum, Mead's Cereal, Sobee, Mead's Powdered Protein Milk, Mead's Powdered Lactic Acid Milk Nos. 1 and 2, Mead's Powdered Whole Milk, Alecta, Recolac and Casec. There is also for the examination of physicians a complete line of Mead's services such as "Diets for Children from Four Months to Four Years," height and weight charts, etc., all of which are free to members of the medical profession in any quantity desired. Representatives will be on hand to meet their friends and to discuss the application of any of the Mead products to infant feeding problems.

A. S. ALOE COMPANY, 1819 OLIVE STREET, ST. LOUIS, Booth 2.

The A. S. Aloe Company presents a showing of the new Aloe Radio Short Wave Diathermy and the new model Elliott machine which has attracted national attention in treating pelvic inflammatory diseases. The Aloe booth also shows a complete line of instruments and supplies with Stille-Scanlan rustless steel instruments offered at a discount of 25 per cent. Mr. Joe Hensler, Kansas City, and Mr. Paul Beyreuther, the Aloe Missouri representative, are in attendance.

THE DEVILBISS COMPANY, TOLEDO, OHIO, Booth 3.

The DeVilbiss Company, manufacturers of medicinal atomizers, are exhibiting a complete line of atomizers and vaporizers for both home and professional use. A prominent feature of the display is the recently developed DeVilbiss nasal guard which prevents any excess pressure in the nasal passages during prescribed self treatment. Mr. I. W. Snock is in charge of the exhibit and all members to the convention are cordially invited to visit the DeVilbiss display.

THE W. E. ISLE COMPANY, 203 RIEGER BLDG., KANSAS CITY, Booth 4.

The W. E. Isle Company makes artificial limbs, stump socks for artificial limb wearers, orthopedic appliances, the new improved Bradford frame recently worked out by that company, extensions and surgical belts. They carry Camp surgical and maternity belts, Gossard corsets, Lastex hose, crutches with cushions and tips and wheel chairs. They specialize in dependable products—proper fittings—prompt service. You are cordially invited to inspect their exhibit and to visit their factory at any time.

MCINTOSH ELECTRICAL CORPORATION, 223 N. CALIFORNIA AVE., CHICAGO, Booth 5.

The McIntosh Electrical Corporation exhibits the Hogan Brevatherm short-wave diathermy apparatus with cutting current which has evoked most favorable commendation. A splendid bargain is offered in a 300-watt infra-red lamp and stand for only \$9.75. An attractive display of conventional type 300-meter diathermy units, sinusoidal wave current generators, galvanic units facilitating the well-known Keesey hemorrhoidal technic, and a novel inexpensive type of the Vattenborg Colonic Irrigator are shown. Inexpensive and practical units and accessories for tonsil and cervical coagulation are presented.

P. W. HANICKE MFG. CO., 1013 MCGEE ST., KANSAS CITY, BOOTH 7.

The P. W. Hanicke Mfg. Co. exhibit contains the latest models of their own designs of paralysis braces made of lighter than steel material such as duralinum and molibderum; clubfoot correction braces with celluloid foot form shoe for day and night use; bowleg and knockknee correction braces; spinal braces for correction of curvature as well as those for support in tuberculosis of the spine and for convalescent treatment following fracture of spinal vertebrae; their own model of adjustable aluminum apparatus for fracture of cervical spine; sacro-iliac supports in belt and corset style; Goldthwait braces; arch supports; abdominal supporters and surgical corsets; surgical splints of every description and trusses.

THE C. V. MOSBY COMPANY, 3523 PINE BLVD., ST. LOUIS, Booth 8.

The C. V. Mosby Company exhibits its complete line of medical books and journals. Among the new material shown is Gradwohl's "Clinical Laboratory Methods and Diagnosis," new editions of Sutton "Diseases of the Skin," Elmer and Rose "Physical Diagnosis," Clendening "Method of Treatment," and Macleod "Physiology in Modern Medicine." Also on display are recent books by Zahorsky "Synopsis of Pediatrics" and Dodson "Synopsis of Genito-Urinary Diseases," Key and Conwell "Management of Fractures, Dislocations and Sprains," and Hertzler "Surgery of the General Practice." Guests at the convention are cordially invited to see the Mosby display.

PHILIP MORRIS & CO. LTD., 119 FIFTH AVE., NEW YORK, Booth 9.

Philip Morris & Co. Ltd. Inc., manufacturers of Philip Morris cigarettes, has been studying the effect of smoking on irritation of the mucous membrane of the upper respiratory tract. In this booth one of its research staff is available to explain the work and the results obtained. Samples of Philip Morris cigarettes will be distributed.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

13th Annual Meeting, Atlantic City, 1935

President, Mrs. Robert W. Tomlinson, Wilmington, Delaware.

President-Elect, Mrs. Rogers N. Herbert, Nashville, Tennessee.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

11th Annual Meeting, Excelsior Springs, May 7, 8, 1935

President, Mrs. William H. Goodson, Liberty.

President-Elect, Mrs. M. Pinson Neal, Columbia.

Adviser, Dr. J. F. Harrison, Mexico.

An Appraisal

In these days filled to overflowing with activities, responsibilities and organizations, every woman wishes to use her time to the best advantage. This year when the Auxiliary has colored my thinking, directed my reading and determined my plans, I have tried to evaluate it. Does the Woman's Auxiliary help its members physically, mentally and spiritually? And the answer to all three of these questions is in the affirmative. It gives physical refreshment in the association with congenial friends; it stimulates mentally for it helps its members to keep in touch to some degree with a science that is making more rapid and marvelous progress than any other science, and it is of value spiritually because it trains them to serve their communities. And of first importance to us, no other organization offers to us, as doctors' wives, an equal opportunity for working with our husbands and furthering their ideals, as does our Woman's Auxiliary.

MRS. W. H. GOODSON.

THE NATIONAL CONVENTION, ATLANTIC CITY, JUNE 9-13

(From the message of invitation and information of our National President, Mrs. Robert W. Tomlinson.)

The Traymore Hotel will be Auxiliary Headquarters. All business meetings will be held there as well as several social events. The room for our business meetings will be high in the air overlooking the ocean. Most of our entertainments will be in sight of the water and some out in the air and sun. Our opportunities for enjoying old and new friendships and for Auxiliary inspiration will be unusual. Many Canadian women will accompany their husbands to this combined convention of the medical associations of these two great countries of North America. May it be our pleasure to welcome you there.

National Convention Program

Sunday Evening: Supper for National Board, Woman's Auxiliary to the Medical Society of Delaware, hostesses.

Monday: National Board Meeting. "Get Together Dinner." Reception in honor of the Canadian visitors.

Tuesday: Southern Breakfast, sponsored by the

Auxiliary to the Southern Medical Association. General meeting. Shore luncheon and chair ride. Tea. Woman's Auxiliary to the Philadelphia County Medical Society, hostesses. Opening of the American Medical Association Meeting.

Wednesday: General meeting. Auxiliary luncheon. Program, sponsored by Women's Auxiliary to the Medical Society of New Jersey. Evening on the Steel Pier.

Thursday: Post Convention Board Meeting. Luncheon, bridge and style show. "Bring Your Husband" Dinner. Reception and ball of the President of the American Medical Association.

Friday: Golf Tournament and Luncheon.

AIDS TO HEALTH EDUCATION

Mrs. A. B. McGlothlan, National Program Chairman.

The National Auxiliary Study Envelopes that are now available are: No. 2. Common Physical Defects in Children; No. 3. The County Health Unit; No. 4. Communicable Diseases—Diphtheria, Typhoid Fever, Smallpox; No. 5. Communicable Diseases—Measles, Whooping Cough, Scarlet Fever; No. 6. Milk, and No. 7. The Prevention of Blindness.

Among various uses being found for the Study Envelopes are: Auxiliary members for self education; physicians to give to their patients; teachers of health education; home demonstration agents for farm women's clubs. Parent-teacher associations and women's clubs use them.

At the request of Miss May Bowlin, superintendent of schools of Cass County, our National Auxiliary Health Education Studies have been supplied teachers of all rural and village schools of that county. Miss Bowlin says: "Our teachers tell me that through the use of *Hygeia* and the National Medical Auxiliary Health Studies they are now meeting the demands of the state course of study most satisfactorily. *Hygeia* is a remarkably valuable health magazine and I consider the Health Education Studies inherently interesting, practical, authentic and to have excellent teaching value."

BOOK REVIEWS

MODERN CLINICAL PSYCHIATRY. By Arthur P. Noys, M.D., Superintendent of State Hospital for Mental Diseases, Howard, Rhode Island, formerly First Assistant Physician at St. Elizabeth's Hospital, Washington, D. C., etc. Philadelphia: W. B. Saunders Company. 1934. Price \$4.50.

This excellent treatise on psychiatry also includes mental manifestations arising from many organic diseases involving the contents of the intracranial cavity. The book written in a style which makes easy reading, should be welcomed by psychiatrists as well as medical men in general seeking the latest knowledge concerning diseases of the mind and brain. In this compact volume are found references to even some of the more uncommon disorders.

The first eight chapters give due consideration to such topics as mental development, studies of behavior, psychology, mental mechanisms, etiology, heredity and methods of examination. The balance of the book deals with separate nosologic entities. A copy of the classification as adopted recently by the American Psychiatric Association is furnished.

No doubt a few chapters might be criticised by some

medical men when considering such a labile subject as pure psychiatry. The bibliography may be adequate for a general reader, but might be held as inadequate for the more critical student or research worker. For instance some references are made to authors not listed in the various bibliographies at the end of each chapter.

There has been a trend in late years for writers of psychiatry to include involutional melancholia with the manic-depressive group. Our author has given each a separate chapter, which may be quite correct. He devotes a separate chapter to the paranoid syndromes which today by many psychiatrists are included in schizophrenia. This too, may be welcomed.

The essentials on general paralysis, which has enough material for a complete volume or more in itself, has been presented. All of the modern advancements relative to this subject are discussed at least briefly. The Wagner von Jauregg treatment, with the modifications, has been warmly recommended, and justly so. Among the various chapters devoted to psychiatric syndromes in connection with a number of organic diseases involving the brain, attention may be called especially to one, "Psychoses With Brain Tumor." Certainly more than 75 per cent of all brain tumors give rise to some mental manifestations even though mild in many cases. This would not exclude even the subtentorial neoplasms.

Neurologic material is mingled with that of psychiatric in at least two chapters, one on minor psychoses and the other on the epilepsies. In the chapter on "Epilepsy and Epileptic Psychoses" we might consider some types especially as belonging to the field of neurology. Epileptiform attacks arising from various levels of encephalon are indicated. In a consideration of the symptomatology in the second stage of a classical mal attack, it is stated that the clonic movements would occur at the rate of 12 to 15 times per second. The reviewer believes this to be an excessive number of clonic contractions per second for the average case. Rightfully the author indicates a brighter prognosis now and that treatment offers much more hope as contrasted with similar discussions by older authorities.

Dementia praecox has been divided into four definite groups; the simple, hebephrenic, catatonic and paranoid. It is admitted that frequently clear cut separations cannot be made. All of us have observed mixtures for these various types. Authorities are quoted for and against a morbid anatomical entity as responsible for schizophrenia, the author of this book seemingly inclined to the latter.

A. L. S.

THE SPASTIC CHILD. A Record of successfully achieved muscle control in Little's disease. By Marguerite K. Fischel. St. Louis: The C. V. Mosby Company. 1934. Price \$1.50.

Rare is lay writing on a purely technical subject that is considered worthy of space on the shelves of a medical library. Rarer still is a similar work that could be pronounced required reading for a medical profession. "The Spastic Child" is a record, painstakingly but simply written, of the startlingly successful self-devised method followed by Mrs. Fischel for 16 years in correcting the seemingly hopeless muscular disorganization in her son due to Little's disease.

To say that Mrs. Fischel followed a method might lead one into the error of concluding that she discovered a system and merely applied it for 16 years until her son could be taught to carry on the work with personal conscious effort to attain physical perfection. That would have been comparatively simple. The facts are as set down in the small volume that when

Mrs. Fischel began her corrective work there was little or no literature on the subject of which she could avail herself. Here was an endless routine of trial and error. Exercises, massages and recreations she devised had to be changed, added to or abandoned daily. She worked with the desperate zeal of a mother determined to correct an imperfect specimen she had had the misfortune to produce. Happily this zeal seem to have been combined with a rare natural intelligence.

The value of the volume to the profession is increased enormously by a series of sketches included in the work to illustrate the technic of many of the exercises devised by Mrs. Fischel.

In the introduction Dr. George Gellhorn says of the volume that "it carries a message of hope to mothers of similarly affected children. It is inspiring to the nurse who can see how devoted care, intelligently applied, will restore to normal an apparently hopeless condition and rehabilitate a sadly handicapped individual. It is also immensely instructive to the physician because he will find in it the manifold particulars of therapy of Little's disease which, with such wealth of detail, can hardly be found in medical literature."

Once in her small volume Mrs. Fischel pauses to say with critical intelligence: "Incidentally, I have, during contact with physicians personally, found that the neglect of and lack of interest in therapeutics—in what goes for all-round medical education—seems one of its regrettable shortcomings. Perhaps the future will tell a different story."

If there is any doubt that Mrs. Fischel, who is the wife of Dr. Ellis Fischel of St. Louis, was more or less working on her own it will be dispelled when one reads this in the book: "... although my husband has given devotedly of his support to me, as a surgeon occupied in other fields, he frankly was not equipped to direct or originate any of the rehabilitation work or thought and, until the boy's twelfth year he was entirely ignorant of what work was being done—as he would himself be the first to state."

F. E.

THAT HEART OF YOURS. By S. Calvin Smith, M.D., Sc.D. Illustrated. Philadelphia: J. B. Lippincott Company. 1934. Price \$2.00.

Apparently stimulated by Logan's Clendening's success in writing "The Human Body" doctors over the world have been pouring out a stream of books on the same general line. Disapproval on the part of many eminent physicians of attempts to educate the public has not seemed to weigh much against the demand of the public that they receive information on medical matters. Furthermore, the reader is reminded that in Edward Bellamy's ideal society every man and woman is educated in ordinary medical knowledge and needs a physician only for consultation occasionally (see "Equality").

The book before us seems to be motivated by the best of intentions and purposes, but unfortunately its language does not seem to be that of the drawing room or the street. Consequently in many cases it is not clear enough for a reader unaccustomed to scientific terms to understand. It lacks the sparkling wit necessary in this day and age to catch the attention of the man on the street.

Your reviewer noted some points about which there would be a difference of opinion such as keeping a baby lying on the right side for a few weeks after birth; or again, that he finds mineral oil bad for the ordinary patient. While such expressions of opinion are not relevant to the subject, nevertheless they weaken the book in that they lead the reader to question other opinions expressed by Dr. Smith.

G. H. H.

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OUR OBLIGATION TO ORGANIZED MEDICINE

PRESIDENT'S ADDRESS

C. T. RYLAND, M.D.

LEXINGTON, MO.

Life itself is a serious proposition, but what calling in life is more serious than the practice of medicine! A physician has a great responsibility upon his shoulders. Health, happiness and life itself depend upon our ability to diagnose a condition, to apply the remedy, to keep our nerves steady and our minds clear. To us has been intrusted the almost divine art of healing the sick, ushering into the world a new life and giving peace to an earth-tired spirit.

Because of this sacred trust it is our duty not only to fit ourselves for the work but to do all in our power to advance the science and practice of medicine. We should encourage, advise and assist those who are fitted for its practice, and forever drive from the fields of medicine and surgery those who are a menace to life and health and an insult to our noble calling.

I am heartily glad to be with and of you. It is just such meetings as this which insure to our profession its healthy life and vigorous growth. I do not refer to its numerical increase and still less have I in mind its pecuniary rewards, although these, let us hope, keep step with its scientific advance.

I take off my hat to the specialist, the aristocrat of our profession. I bow with reverent knee to its intrepid hero, the general practitioner.

It is this frequent coming together of scores of earnest men, each with his individual experiences but all with a single engrossing purpose, which keeps science abreast of the times and ever ready for the next forward step. The full and candid

presentation of our varied experiences, our mistakes and failures no less than our successes, makes possible intelligent comparison, stimulates suggestion and leads to discussion out of which each of us surely may gather somewhat of profit.

Doctors in the United States have had tough sledding. The depression is only one of their troubles. Among their other trials we find:

Free clinic service has quadrupled in a decade; medical men now treat gratis 500,000 of the nation's daily sick list of 1,250,000.

Pay clinics have had a recent mushroom growth. They were designed for down-trodden white-collar workers and to operate on a system of small fees. Doctors must give their services free while other employees are paid.

Competitors have been chiseling fat slices from the national medical dollar: Osteopathy, \$42,000,000 a year; Chiropractics, \$63,000,000, and livings for 3000 naturopaths and 10,000 Christian Science practitioners.

There never was any excuse for the chiropractor or the osteopath and they never should have been allowed by the medical profession to assume the proportions they have attained or to have become powerful enough to have or attempt to have separate boards of licensure. The medical professional should have absorbed the best these cults had and taught and used it. They should not, even now, be allowed to usurp the medical doctors' sphere by prescribing drugs as a great majority do. Possibly, had the medical profession been alive to its own interests, the various types of healing such as osteopathy, chiropractic and naturopaths would never have had the following they now command.

Lesser bad breaks for the family doctor's pocketbook have included free hospitalization of veterans and mass production contract systems of medicine fostered by insur-

ance companies and compensation clinic work.

I am told that now highway filling stations are being recommended as first aid emergency stations.

In spite of shrinking incomes among its members, the profession has officially denied that the system of private practice is threatened. Socialization of medicine, which might insure practitioners bread and butter in the form of salaries, we doctors claim would undermine medical ethics.

There are many paid agents who go through the country sowing seeds of personal antagonism to organized medicine. Some are so clever in phrasing their expressions that they beguile the unwary and attract to their untried schemes many who believe them. It is not uncommon for these destroyers to state openly that they never have any fault to find with the present system of medicine, that it is unfortunate there is so much dissension in the ranks of organized medicine and that we must consider the laymen's point of view in the practice of medicine. If anyone raises his voice in opposition to their theories he is immediately regarded as an obstructionist, one incapable of appreciating life, and is accused of advancing ignorant opposition to change. Now I wish you particularly to note that there is such a thing as opposition to ignorant change. Almost invariably such propagandists exaggerate the hoped for results of their systems and belittle the efforts of thousands of consecrated physicians who have worked unceasingly and often without remuneration for the preservation of general health.

You are told that organized medicine was unprepared for the emergency that was forced upon it in the last few years of economic disruption. You might listen to such arguments and be convinced of their sincerity if medicine was in such a deplorable state, but I assure you it is not as badly off as many other professions. Even our detractors admit that medicine is not the only division of society which to their minds is in a chaotic state.

I am, and I trust you are, quite satisfied with the arguments that are advanced for a plan of medical service which says the physician is to be given his proper place in the sun, but then new schemes are thrust upon him to take from him his right to practice. I refer in this connection particularly to the statements that some state health departments want you, the practicing physician, to carry on and then in the face of that an-

nouncement builds and subsidizes new clinics and laboratories to compete with you and attract the patients whom you are prepared to protect and care for.

I cannot see how it is possible for any one to harmonize these facts. We are living in a strange age when those whose livelihood depends upon the physician hold him up to ridicule.

The state and local boards of health are only our agents and must not attempt to become dictators for you and I, as taxpayers, support them.

Is it not time that the logical body, organized medicine, be given its proper place as the Master in the House of Medicine? Because we have performed our kindly beneficent work without the flare of trumpets and clashing of symbols, does it lessen its value or does it really reflect our genuine desire to prevent and cure illness?

Too many laymen receive their wages from outside medical agencies. We as physicians must take a stand against any more smooth, mystical word combinations. Those opposed to logical progress in medicine will say that I do not represent the majority of those who are in practice. Ask them for proof. Continue to ask for confirmation of their statements, which are almost invariably spread by press and air as though they were the result of serious thought and study; instead they are but a reflection of their propensity to sit in the spotlight.

Some agencies are at this time attempting to foist upon you untried methods which, however, embody features that have previously failed when put in operation. It is said that organized medicine advances nothing in the way of constructive criticism. A ten-year old school boy could make a phrase just as forceful and just as senseless.

At a meeting of the American Medical Association the following committee report was accepted. I trust that all of you have read it. It is the pronouncement of the American Medical Association representing one hundred and ten thousand practicing physicians, viz.:

First: All features of medical service in any method of medical practice should be under the control of the medical profession. No other body or individual is legally or educationally equipped to exercise such control.

Second: No third party must be permitted to come between the patient and his physician in any medical relation. All responsibility for the character of the medical service must be borne by the profession.

Third: Patients must have absolute freedom to choose a duly qualified doctor of medicine who will

serve them from among all those qualified to practice and who are willing to give service.

The origin of all criticism against the present system of medical practice comes from the so-called philanthropic foundations.

The discussions of the health of a community are always befogged by the overshadowing, sometimes obscuring clouds referring to the economic status of the patient. No one ever heard of a poor or a deserving patient being refused proper medical care.

The new set-up proposed by so-called social uplifters embodies the same old misconception of obligation on the part of the physician and lack of appreciation by the laity. In one place the socializers tell us that preventive medicine should be stressed and that the proper one to do this is the trained private physician, while, at another time they suggest that he be relegated to the background and that medical service be dispensed in practically the same way that alcohol is today.

As an example of what state medicine would mean, I ask each and every one of you to analyze the benefits that you receive from the workmen's compensation law, those which you got from the CWA, and then those that you are receiving under the present welfare act.

At present we are facing many important problems the solution of which will demand study, careful planning and much hard work. The medical colleges are turning out more physicians than can be used in the present state of society. The incomes of the masses have been lowered to such a level that the average physician in actual practice is not receiving more than half the income received in 1929. Laymen, social workers, health workers, politicians, department store owners, would-be reformers, economists, socialists and antivivisectionists are all trying to change the present method of medical care so that it will concur with their ideas.

It is quite clear that we are opposed to so-called socialized medicine. It is quite evident that the term "socialized medicine" is a red flag to many physicians. It is true that we have state medicine in many forms which are accepted as a matter of course and no one seems to get excited about it. The care of the insane by the state which we have had for the last one hundred years is a definite form of state medicine. The manufacture and distribution of various vaccines, toxoids and other biologic preparations are state medicine. The hospitalizing of the indigent patient, paid for by the city, county,

or state, is state medicine. The building of county and state hospitals for the care of tuberculosis is state medicine. The hospitalizing and treating of our veterans in government hospitals is state medicine. To what form of state medicine is it that the practicing physician or doctor objects?

The family physician should be protected in all those endeavors for which his training and education have prepared him in the diagnosis and care of the sick and injured. He should be permitted to be in charge of and supervise all health examinations not only of school children but of adults, the administering of vaccines, toxoids and other biologic remedies. If we are to continue the practice of medicine as now constituted—and by this we mean that the family physician will be retained as such to administer to the sick and injured and that he will be able to retain his patients as individuals—the formation of groups, either by lodges, insurance companies or other forms of group practice, should be discouraged.

The welfare departments in larger cities are paying the physician or physicians a salary for the care of the indigent. The purpose of this arrangement is to budget their funds better. It has many objections: (1) A practicing physician who has a salaried job usually takes care of his private work at the expense of his salaried work. This is only human. (2) It often occurs, if an indigent person is very ill or demands too much attention, that the case is sent to the charity wards of the hospital causing the city to pay for double service. (3) Too often the city physician is a political appointee who is not appointed for his ability but for his political influence and as a result gives inferior service. (4) A physician on a fee basis will always respond more promptly than one on a salary.

There has never been a time when the human race, the nations of the world and our profession in particular needed intelligent, careful, thoughtful common sense leadership as it does today. Therein lies a challenge to all of us, to bring forth the best, the most substantial traits which we possess and apply them to our future problems which are just being opened up by our present situation.

This is not the goal of our endeavors but simply the starting point for a wide variety of projects that need our immediate attention.

Various forms of contract practice by physicians and surgeons as well as low

priced group hospitalization were criticized recently by the president of the Philadelphia County Medical Society at a meeting of the Medical Society of that District. He spoke on "Medical Economics" and declared hospitals are in competition with physicians and can quote low prices because they pay no salaries to interns and get endowments from individuals or governments.

Physicians were urged by him to fight free clinics and refuse to contract with compensation boards and insurance companies at low prices. He said only \$22 of the \$150 spent annually by the average family for medical care goes to a doctor. He also declared the 145,000 physicians and surgeons in this country annually donate services worth \$63,000,000, a larger contribution to society than is made by any other group. He said every person who comes in contact with a "free patient," except the doctor, receives some compensation.

The various group plans, according to this same speaker, have taken 70.7 per cent of the commodity medical business away from physicians who spent twelve years preparing to practice their profession.

Most of the articles that are written and the discussions of medical care seem to be hitting mainly at the doctor's fee which in reality has not advanced in comparison with services in other lines.

Compare the class of men who study medicine, their years of preparation, their intelligence, their self-sacrifice and the cost physically and financially with the class of men, with but few exceptions, who enter politics. Then remember that the medical profession permits itself to attempt to practice under laws and regulations most of which are suggested by members of the average state legislature and city councils.

The legal profession should be taken as an example by the medical profession. They have an active body known as the bar association, and through this association laws are suggested and formulated and if they have any direct bearing on their profession are rarely passed without the complete sanction of this association.

In no other profession or business are there so many channels being used to divert the rights, legitimate business and income from the proper source as we find directed against the members of the medical profession.

Physicians should interest themselves in their various societies starting with their local clubs, their county medical societies, state and national societies. They should

insist that each one of these societies take an active part in the making of laws which vitally concern and interest the physician.

The law-making and law-suggestion should be taken absolutely away from the laity, politicians and special interests and by force of numbers, backed by sincerity of purpose and absolute unity and public opinion, the profession should compel laws to be passed regulating abuses and permitting only such laws as will be healthy for the physicians and public alike to be written into the statutes.

The proper function of a medical society should be to interest itself in any problem concerning the physicians within its jurisdiction as well as to have scientific programs which concern only the patient.

The state society should be a body alive to the interests of the physicians in the state and should insist upon real legislation for the protection of its members and their interests rather than be a series of bureaus where only medical or surgical subjects are listened to and discussed once a year.

So should the national societies be active in preserving the men who are the backbone of the nation, as they are doing rather than devoting their entire time to working out forms of standardization and the exploitation of theory.

In a little more than a century the medical profession has done more for the race than has ever before been accomplished by any other body of men. These gifts to the people in the forms of vaccination, sanitation, anesthesia, antiseptic surgery, the science of bacteriology and the new art in therapeutics, have effected a revolution on our civilization.

Medicine is the most difficult of sciences and the most laborious of arts; it taxes the powers of body and mind. A doctor who is true to the ideals of his profession will not place a monetary value as his first consideration on his services but rather the welfare of the patient and the restoring of his health should be the first and paramount consideration in his mind.

The medical profession today is one of the few remaining groups that cling to the traditions for which blood has been shed from Lexington to the Argonne. It begs to be let alone, to carry on according to its honorable principles without interference from bureaucratic and governmental infringements.

The medical profession of Missouri still believes in the American conception of human rights and liberties which have been the foundation and inspiration of progress.

We need not be in a great hurry to solve the problems here confronting the House of Delegates. Woodrow Wilson said at Pittsburgh, January 29, 1916: "One cool judgment is worth a thousand hasty councils. The thing to do is to supply light and not heat. At any rate, if it is the heat, it ought to be white heat and not sputter because sputtering heat is apt to spread the fire." Thomas Jefferson said: "We must be contented to travel toward perfection step by step."

Members of the medical profession demand the right to fail or succeed by their own individual efforts. The medical man is an individualist. The contributions made to medical science have been largely the result of an individual's courage to think and act independently. If William Jennings Bryan were alive today and a member of the medical profession he might well say: "You shall not crucify the practice of medicine on the cross of socialism. You shall not press down upon the brow of Aesculapius a crown of regimentation thorne."

With these few remarks, I wish you a most profitable meeting. The officers of the Association and myself want you to know that we deeply appreciate the time and effort you have spent in behalf of our organization and we feel sure that what constructive changes have been made in years past are due in no small part to your activities.

This is an era of rapidly changing ideas and ideals. It is good for us to come together for these annual meetings and discuss our problems. The subjects which I have discussed in this paper are not new but every one of them is of vital interest and importance to the members of our profession. It is well for us to consider them carefully, decide for ourselves what is the right and honest course to pursue. We are not good politicians. We are not always able to push medical bills through the legislative mill. However, the weight of our united opinion is powerful and I have the conviction that, standing together, deciding our problems honestly and unselfishly, the moral influence of our profession will be sufficient to accomplish a satisfactory solution for any of our numerous medical problems.

ARTIFICIAL FEVER THERAPY

In the last year E. L. Whitney, Detroit (Journal A. M. A., May 18, 1935), used artificial fever alone as a means of therapy in a number of eye conditions. Eight cases presenting varying types of corneal ulcer and six cases of acute iritis are reported. The results suggest that there is merit in this form of fever therapy, in which the height of the fever and its duration are under such perfect control.

THE DOCTOR OF TOMORROW

ADDRESS OF PRESIDENT-ELECT

E. LEE MILLER, M.D.

KANSAS CITY, MO.

The structure of social relationships is in a state of revolution. Economic depression has produced innumerable forces that seek change in the existing order of things. No business or profession has escaped the effects of this revolution. Medicine in particular is being stirred in this cauldron of witches. What the potion shall be is to be determined by whatever leadership gains the ascendancy as well as by the fundamental structure of the art itself. That grave forces are at large, both without and within organized medicine, endeavoring to change not only the structure of social activity in man's state of health, but also in his ill health, is evident. Whatever plan is finally adopted concerning how a physician shall practice medicine will determine the usefulness of the doctor of tomorrow.

That we, the organized unit of medicine in Missouri, should have some part in determining this final plan for the practice of medicine is absolutely necessary. That other forces or leadership are attempting to change the order and manner of our practice cannot now be disputed. Whether we accept this lay leadership in telling us how and for what, when and on whom we shall ply the art of our science rests with the membership of the Missouri State Medical Association in so far as the commonwealth of Missouri is concerned. That sinister forces are active in our national and state governments which have for their purpose, it seems to me, a limitation of the present status of the members of our profession there can be no doubt. These forces profess interest in our patients, indict us for our inability to meet what they say is the problem of public and private health. Vast sums of money endorse these critics and on that account they are permitted to make their charges that the doctor's fee is too much and that the doctor does not meet his responsibility to his patient. In fact, indirectly, they infer we do not know our business in taking care of the sick. They charge, properly, that it costs too much to be sick. To that part of their doctrine we all heartily subscribe. But they imply that if the doctor of tomorrow was paid less the cost of sickness would be in great part relieved. They can cite a few

Read at the 78th Annual Meeting of the Missouri State Medical Association, Excelsior Springs, May 6-9, 1935.

instances when despicable overcharges have been made by doctors. So they indirectly deduce that all doctors overcharge for their services. Hence, all men who practice medicine should be thwarted by law to become social service hirelings of the state and subject to the dictates of the executive of the state or nation for a compensation the layman shall dictate. In fact, these forces want to socialize the doctor although loud in their cry against socialization of business. They appear to be advocates of communism for the doctors but not for themselves. On this basis we indict the logic of their position and the sincerity of their purpose.

That it costs too much to be sick is true. What are the sick services that can be thus indicted? You men in this room know that it is the high cost of hospital and nursing service, which we all admit is at times necessary, where charges have become excessive. What one of you in this room cannot subscribe to an experience like this? The patient is a cholecystectomy candidate and wants and needs some careful watching, hence a trained nurse is called. The period of convalescence is two weeks. A private room costs \$84, operating room \$15, laboratory \$5, drugs and dressing \$15. Two nurses at \$42 per week each cost a total of \$168. And so if the patient is a very sick man this makes \$287 it costs him to be sick before one penny is available for the payment of a consultant, the anesthetist or the surgeon. Suppose the surgeon charges \$100, the anesthetist \$15 and the consultant \$50 for a trip away from home. Then the cost of all doctors' services is less than the nurses alone. Could even a foundation indict the doctor for overcharging when, with \$287 spent before the doctor's fees is even considered, his charge is less than the nursing expenses? What manner of patient from the farm has \$452 available to meet such a financial outlay? Gentlemen, hospital cost is high and nursing service, with the now adopted twelve hour duty, is being paid a sum that depression patients cannot stand long. It is true the nurse is invaluable in many cases, but in times like these her charges are quite severe. Would any layman dare believe that the physician's service was not the most valuable contribution to a patient's welfare? Yet, sure it is that the physician gets no remuneration until these other service obligations are met. How many people in your community can meet \$452 cost without great difficulty? The doctor is one third the cost of being sick in the hospital, usually the last third to be paid. Gentlemen, it is not the

doctor's charge that accounts for the high cost of being sick. His services are easily two thirds of the total value of personal attendance to the sick, and at present he receives just one third of the outlay. Certainly, he is worth as much to a patient as a nurse. Yet, if nursing and hospital charges continue to mount the physician must eventually find some other type of service to meet his patient's needs. This is a grave problem that must be handled by the doctor of tomorrow. He should not be further limited by law to regulate his already too meager compensation, for the value of the services he performs cannot be eclipsed. We welcome aid in a fair solution of this problem but reasonably resent the indictment that we are overpaid.

To meet the necessary high cost of sickness we now have insurance plans being formulated. For a small yearly premium the patient is to receive care for his existing sickness. The insurer contracts to furnish a doctor and a hospital bed but no nurse. The doctor should be the insurance employee. Whatever profit shall evolve shall compensate the director of the insurance company who argues that he takes the risk and therefore the gain. The main fault with the plan is that the doctor is not paid a salary commensurate with the duty he is supposed to perform. Hence, the doctor who has the ability to properly service the insuree's necessity is not economically available. Often, a less capable physician is employed. This is fundamentally and ethically wrong. We subscribe to the fundamental principle that the sick man shall have the privilege of the employment of the very best doctor for the purpose of healing his illness. That the patient does not always do so does not invalidate the logic of this established principle. We believe such insurance plans as are now available to meet the poor man's sick problem are thus opposed to the best interest of the patient as well as the doctor. The doctor of tomorrow must be protected against such plans.

So much for the proposed plans to take the care of the sick out of the hands of the doctor. If we are sure of our position we need fear no such mechanisms. We can so oppose their proponents that they cannot succeed in their establishment. We should always do so on the basis of the best interest of the patient. This is the position we must steadfastly hold.

The doctor of tomorrow must and will be protected from these sinister influences and proposals. His education is becoming so

acutely defined, his professional attainments are becoming yearly so perfected that the very standards of education in medicine are now so superior in our better schools that we can prophesy better practice and higher zeal. The difficulty of the present medical curriculum is steadily mounting. Soon, nothing but students of master minds can attend the medical schools. It takes a better mind to be a doctor of tomorrow. That the public will eventually guarantee such attainment, we shall shortly see the enactment of a basic science law for eligibility to practice the healing art. It is a fair law. The people of Missouri will soon understand its protective features and invoke its passage. We still have a few medical schools whose graduates should not be permitted to practice. They will be eliminated by the passage of the basic science law.

How should this supereducated doctor of tomorrow practice his art? He may consolidate his abilities and practice in clinics. The patient likes to go to a clinic. He may be a specialist. The trend of practice is to specialism. Let us hope he is qualified for the specialty he professes. Too often in the past a specialist is a doctor who spends two months in New York City and testifies to his own ability. There should be and will be a minimum standard of examined attainment before any man should be privileged to confess a specialty. England through her Royal college degrees has so designated her qualified specialists. We can profitably follow England's example about standard approval of specialists. There are now too many specialists. The people want them. What every family in America really needs is a sick budget and a good trustworthy general practitioner. If we had more of these doctors of general knowledge who are qualified to pick the proper specialist if one be needed, we would have less cry of the high cost of being sick. The reason we do not have them is that people pick their own specialists, believing that they can thereby save money. This opinion comes largely as the result of the despicable practice of fee splitting. Sharp practice in this regard redounds to the practitioner and consultant's discredit. Suspicion of the practice has broken down the patient's confidence in his doctor, whether that doctor was guilty or not. Patients will not tolerate being sold like chattel. They know as you and I that this practice is unethical by all the laws of medicine and fair play. They know that he who violates these laws is a liar and a cheat.

If you cannot implicitly believe in your doctor, then he is no longer your doctor. Fee splitting practices have never helped anyone and it has almost driven the general practitioner out of the picture in our cities. Not many of our physicians practice the nefarious conceit, for if a man be a "fee splitter" he will lie to you and to his patient. He is a money doctor, not a patient doctor. The doctor of tomorrow is no cheat.

The doctor of tomorrow will hold fast to the traditions that have made medicine an enviable science, honored by professions, respected by intelligent thinkers, unsullied by its representative leaders, and because it is a science to be practiced by the individual who has qualified himself to do so, will always be the attractive profession that it is today. Hold fast, gentlemen, to that zeal that has brought you to this assembly. It is here that you meet the personal response that comes from the heart of a real doctor. Hold fast to your ideals and conform your practice to that standard and you will have a compensation far beyond the expression in money, a position the doctor of tomorrow will also cherish, respect and seize with all the zeal a basically sound education will give him. It is a wonderful profession. Let's keep it clean.

I want to thank you gentlemen of the Missouri medical profession for the confidence you have placed in me to act as your executive for the ensuing year. I shall approach my responsibility with a sense of inadequacy. I shall need the help of every one of you. I am yours to command. I accept no enemies in my profession. If I have such and you have cause, then bespeak your intolerance to me. I am willing to make amends. I desire to help where and when I can to hold fast to the traditions of the sound science and sensible practice of medicine in Missouri. This is a wonder state wholly in need of confidence in herself and all her people. She can call upon her doctors and I pledge that she will find them able and willing. For our confidence in her welfare we shall expect confidence in our organized profession. I pledge my interest in your problems. I enlist your further enthusiastic participation in organized medicine in Missouri. If we stand together we can accomplish anything. Divided by silly differences we are all surely to fall heir to practices and policies that would modify the expression of the wonderful doctor of tomorrow. He is our responsibility. We shall not fail him.

PATHOLOGIC AND CLINICAL ASPECTS OF EARLY SKIN CARCINOMA

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The dermatologist is fortunate in his opportunity of observing pathologic processes and their evolution and of correlating his direct impressions of eye and finger, supplemented by the hand lens and pressure glass, with microscopic examination of excised tissue. These advantages are particularly fortuitous in the study of cancer, the earliest visible manifestations of which are immediately available for his inquiry.

The question arises of what is the earliest recognizable cancerous lesion. I limit discussion to primary skin carcinoma. It is common knowledge that in many instances skin cancers begin *de novo*; that is, they put in their appearance at sites which for a period in the host's existence have been completely normal. Plainly a new growth which has appeared where previously there was no growth must while obvious now have been at one time borderline, before that invisible, and before that nonexistent.

Observing that a well developed carcinoma is a solitary systematized group of living cellular units, we may rightfully attempt to unravel its embryology, with the axiomatic premise of "*omnia cellulae e cellulis*." Thinking of any particular specimen of cancer in this way, its mass and volume are seen to be directly related to its duration and the rate of division of its component cells. The mass is also dependent upon cellular death and slough; all are familiar with the central crusts of basal-celled epithelioma, which, being often picked off or falling away, diminish the total accretion, but are immaterial to the nature or malignancy of the lesion.

All the properties or phenomena of a carcinoma are interpretable on the basis of a cellular concept. If one cell of a tumor is viable and is carried to a new site such as lymph gland or lung, and produces there a new colony that grows, destroys, sloughs and disseminates, then the colony is surely a carcinoma in itself, and so indeed is the solitary cell from which it was derived.

One is forced to accept the logical corollary that cancerousness does not depend upon size or quantity of growth. Minute,

even tiny, lesions may actually be carcinoma. A single cell may in fact possess all the essential attributes of cancer.

My observations of several hundred epithelial new growths, seen on the patient, excised and examined under the microscope, have convinced me that most skin carcinomas do begin as exceedingly minute anomalies which progress by a continuous process into gross and unequivocally diagnosable tumors. The microanatomy of the little and early lesions proceeds into the microanatomy of the later full-blown lesions in a way that may be best described as embryogenetical.

In tracing the steps ("steps" is a misnomer, for we are dealing with a continuous, not a quantum procedure) one must start at the known end of the series, with unequivocal lesions and work back to the unknown. I shall present a series of photomicrographs illustrating this. These pictures are arranged with the plan of showing that large and small lesions are similar (figures 1 to 18). In well developed cancer the epithelial downgrowths are simply more highly evolved quantitatively than in earlier ones; the cells of which they are composed possess the identical characteristics of abnormally large size, irregularity of shape, polymorphism of cytoplasm and nuclei, tendency to keratinize abnormally and to form whorls, and general appearance of unrest; the round cell response of invaded tissues differs only quantitatively in the large and small lesions; the structure of the small lesions is such that the microscopist would be justified in believing that they require only time in order to evolve into gross, carcinomatous tumors; and, in fact, many little and superficial lesions are truly cancerous, progenitors of large and deeply invasive carcinomata.

Attempts to define squamous-celled carcinoma appear the vaguer the more carefully they are scrutinized. The best I can arrive at is, "a malignant cell colony, the component units of which tend to undergo keratinization." Then one must define "malignancy." I believe this is best understood as a blanket adjective applicable primarily to individual cells, and signifying these properties: Capacity for continued reproduction in abnormal localities, and rate of multiplication such that cell-colonies derived from a "malignant" cell are destructive, destructive because the rate of growth exceeds the rate of development of protective host tissue reaction. Degree of malignancy, given the existence of malignancy, is a ratio

of tumor-cell-growth-rate to host-tissue-growth-rate.

The grading of malignancy is a subjective interpretative process in which the observer attempts to define in histologic terms the growth capacity and growth rate of given colonies of abnormal cells. Grading obviously depends upon judgment derived from correlation of clinical and microscopic observations of numbers of lesions. No microscopic pathologist can call a tumor malignant except by a mental process of extrapolation; having seen similar structures prove themselves clinically to be malignant, he judges that a like one would probably evolve in a like way. Malignancy is a relationship between tumor and host; better, between tumor cells and host cells; malignancy is not the divine prerogative of a laboratory investigator to impose in degrees upon a microscopic wad of dead and pickled meat. Clear thinking demands the conscious differentiation of subjective from objective, and one must not be fooled by words.

Many lesions which I would call early or small cancers have been called precancerosis, and the concept of precancerosis will bear some scrutiny. The idea of precancerosis was first presented by Dubreuilh in his thesis at the Third International Dermatologic Congress at London in 1896.¹ It includes, according to Cramer,² such lesions as will develop into malignant conditions with a high degree of certainty; or, according to Sulzberger and Satenstein,³ such lesions as, while not yet cancer will if untreated practically invariably become cancer; or, according to Bloch,¹ those pathologic changes in tissues which without being cancer show the tendency sooner or later to develop into actual cancer.

Heiman⁴ asks the question, "At what point does 'precancerous' lose its prefix?" It seems to me that the question is unanswerable if the premises are acceptable that a cancerous lesion, as many surely do, develops continuously and possesses an embryology. It is not possible to determine the probability of a lesion's becoming cancer, for: (a) Either it does or it does not; (b) without microscopic examination the lesion is not adequately investigated to say whether it is cancer or is not; (c) if not microscopically examined and it later does "become" cancer it is not possible to say when it was not cancer; (d) if microscopically examined it is dead pickled in formaldehyde and balsam and wholly without a biologic future so that its ultimate develop-

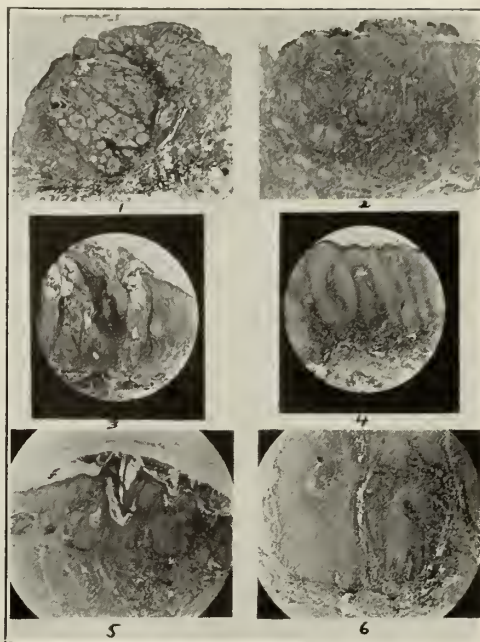


Fig. 1. Carcinoma from lower lip of man aged 77 years. Tubular structure is so outbudded that sections give the impression of islands of epithelium, in which cornification has produced typical pearls. There are two centers of downgrowth. The epithelial cells are large, keratinize abnormally and possess irregular nuclei. In two years this has progressed from leukoplakia to a firm, crusted tumor 4 mm. in thickness. (Magnified by 10.)

Fig. 2. Carcinoma from lower lip of man aged 59 years. Tubular downgrowths reach a depth of 2.8 mm. into a typical stroma of round cells. Neoplastic cylinders are narrow and branching and show central keratinization. This circumscribed crusted lesion began 6 months previously as a "fever blister." (Magnified by 10.)

Fig. 3. Carcinoma from lower lip of a man aged 42 years. This crusted, whitish, button-like, discoid tumor, now 3.3 mm. thick, began as a scaly patch under stem of his pipe 2 years ago. Downgrowing tubules have wide mouths and few outbuddings. Cytologic abnormality is quite apparent under higher magnification. (Magnified by 10.)

Fig. 4. Indurated, circumscribed epithelial tumor from lower lip of a man aged 65 years. Insidious onset it has developed in the last 2 years. The downgrowths are broad and close together, reach a depth of 1.1 mm., show variability in cell and nuclear form, the usual stroma, keratinization in whorls, and the formation of a horny pearl. (Magnified by 30.)

Fig. 5. Circumscribed warty patch from lower lip of man aged 65 years. It has required 10 years to reach the present dimensions, with downgrowths to a depth of 1.5 mm. Sections show a structure resembling that in figure 3, wide mouthed epithelial tubes with keratin-filled lumens. See figure 6. (Magnified by 15.)

Fig. 6. Higher magnification of case of figure 5. Note the whorls of abnormally keratinized epithelium (retention of nuclei), the relatively small amount of outbudding, the scant stroma with its round cells. This is interpreted as a cancerous epithelial proliferation; it is not simply "wart." Its size is small; its growth rate is slow; its malignancy, very little; its classification in the group epithelioma, in my opinion, irrefutable.

ment cannot be known, excepting by a subjective mental process of extrapolation; (e) when examined, its structure is seen to be compatible with the probability of becoming gross cancer, or incompatible with this probability; (f) if incompatible, it is senseless and unreasonable to say it did possess the probability of developing into cancer; and (g) if compatible, it is reasonable to

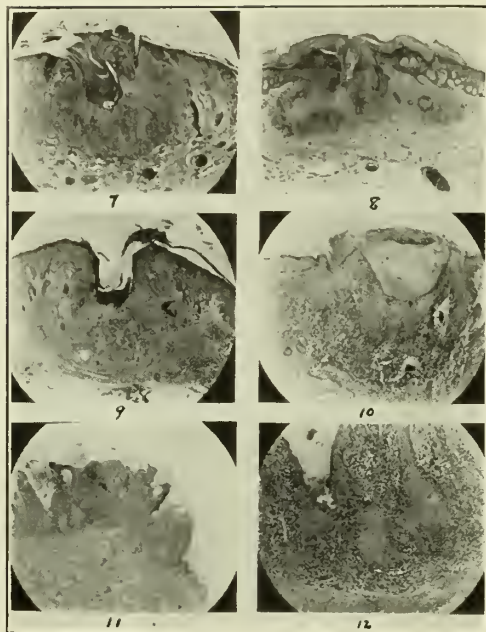


Fig. 7. Nodular, warty, scaling tumor 3 months (?) duration on lower lip of elderly man. Note globose shape and extension of outgrowths centrifugally, the relatively pale staining property of the abnormal epithelium, the cellular stroma. (Magnified by 15.)

Fig. 8. Firm, warty, circumscribed nodule from back of hand of man aged about 65 years. Began as scaly, freckle-like lesion, and slowly enlarging. Early carcinoma. (Magnified by 15.)

Fig. 9. Warty growth from back of elderly man's hand. Note the proliferation in smaller "nests" than in figure 7 but identical basic structure. It is obvious that this is not wart but is carcinoma. (Magnified by 15.)

Fig. 10. A persistent scaling lesion on the side of an elderly man's nose gradually became infiltrated at the base and slowly enlarging. It is evident that picking out the large mass of keratin would result in the lesions becoming practically invisible, but would *not* alter its basic character. Note the irregularity in size of the epithelial cells, their spread into the stroma in narrow strands, and the profuseness of the stroma. This is carcinoma, in my opinion. (Magnified by 20.)

Fig. 11. A lesion from the neck of a woman of 75 years. It began 4 years ago as a scaly patch now it is firm, raised, oval, with adherent scale. Note the epithelial downgrowths with the formation of tube-like orifices filled with keratin, and the stroma. See figure 12. (Magnified by 15.)

Fig. 12. Higher magnification of figure 11. Note the variability in size of the epithelial cells of the downgrowths, their apparent invasion, their tendency to form whorls even in the narrow strands, the proliferation into the stroma as is seen in figure 10. What fundamentally differentiates this from case shown in figure 2? I believe it to be the same process, perhaps of less intense degree. (Magnified by 75.)

believe it is cancer now rather than going to be cancer later.

One must note the difference between the generic meaning of "lesion," in the sense for instance of "senile keratoses," and the specific meaning of "lesion," in the sense of this particular anomaly on this particular patient. I use the particular meaning, not the generic one, because the generic sense involves subjective differences of opinion as to what is included and what is not. If we will discuss diagnosis, and we are here concerned with the diagnosis of small skin tumors, we confuse ourselves if we do not

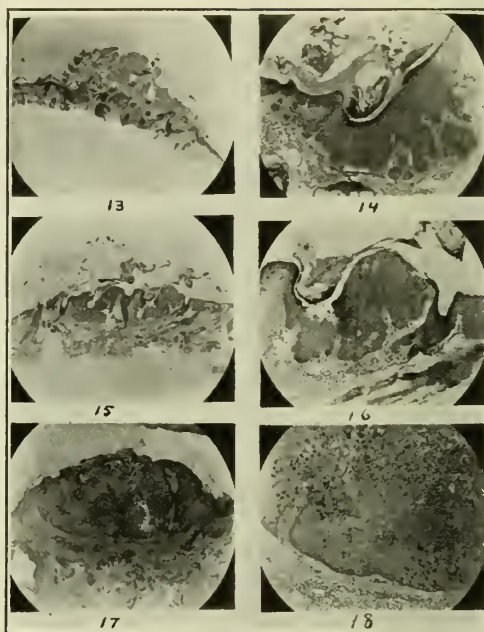


Fig. 13. General view of section of persistent, circumscribed, scaly patch on helix of ear of man aged 70 years. The scale would be picked off at intervals, the lesion apparently disappearing; the scale would then reform, and the lesion has slowly enlarged. Note the limitation of abnormal corneum formation to the zone of abnormal epithelium. See figure 14. (Magnified by 7.)

Fig. 14. Higher magnification of lesion of figure 13. The epithelial layer is irregularly thickened. The cells are large, not uniform, possess hyperchromatic nuclei. There is apparent early outbudding into the corium and slight round cell infiltration. The attributes of cancer are here, for only time is required for this small and mostly intraepithelial carcinoma to progress into gross carcinoma. If this is a "senile keratosis" this senile keratosis is an early cancer. (Magnified by 50.)

Fig. 15. Another circumscribed, scaly, brownish, persistent, enlarging lesion from same patient as in figure 13. This also from the ear. Note the alterations in the epithelium, with marked changes in its appearance from the normal, changes which are proliferative and localized. See figure 16. (Magnified by 10.)

Fig. 16. Higher magnification of lesion of figure 15. Epithelial cellular alteration is clearly apparent. The changes are of the same type as in figure 14. This might be called "carcinoma in situ" (Broders, A. C., J. A. M. A., 99:1670 (Nov. 12, 1932), or "senile keratosis," or "intraepithelial carcinoma." Its carcinomatous nature, irrespective of nomenclature, is the fact I stress. (Magnified by 50.)

Fig. 17. Minute, waxy looking, progressively enlarging nodule from ear of man aged about 60 years. Section shows the nodule to be composed of highly atypical epithelium. See figure 18. (Magnified by 20.)

Fig. 18. Higher magnification of lesion of figure 17. The epithelial cells are of variable size, with highly atypical nuclei and arrangement. Note formation of keratinizing whorls, loosened keratinizing cells, round cell infiltration of stroma. This is clearly carcinoma, doubtless carcinoma from its very inception, and potentially a gross, destructive, and malignant lesion, despite its present small size. Carcinoma is carcinoma, irrespective of period in its evolution at which it is observed. Malignancy is present in tiny lesions as well as in huge ones. No human being should be allowed to die as the result of inefficient treatment of such a "wart." The name "wart" for such a lesion manifests ignorance and such ignorance is exceedingly dangerous.

deal with lesions singly, rather than diagnose them (as senile keratoses, seborrheic keratoses, precanceroses, etc.), throw them into groups and then reexamine the diagnoses.

In summarizing this argument, which has

also been presented elsewhere,⁵ I would point out that I consider it proved by the above considerations that no concept of precancerosis based upon probability of a lesion's becoming cancerous is a tenable concept.

The only meaning for precancerosis that is tenable is as a name for lesions which may or may not be early cancer, which lie in impenetrable doubt, and which cannot be decided upon. This is a usage devised solely as a cloak for ignorance and to designate lack of knowledge.

If precanceroses were thought of as those lesions which are becoming cancer the name would be synonymous with early cancer. If precanceroses are lesions in which cancer is likely to develop the dividing line between cancer and non-cancer is left indecisive, undefinable and not understood.

I would therefore discard the term completely, for it is an idea not an observable reality and on analysis proves to be a confusing makeshift.

It may be difficult or even impossible to decide whether a lesion is cancer or is not; but it is the interpretation that is equivocal not the pathologic process.

I would describe earliest skin carcinoma clinically as circumscribed epithelial lesions that have arisen *de novo*, being generally brownish, rough, scaly or verrucose, asymptomatic or slightly pruriginous, occurring by predilection on surfaces exposed to irritant irradiation (solar or roentgen ray). Microscopically, they manifest squamous epithelial irregularity, acanthosis and dyskeratosis, (1) with changes in cell type or the order of abnormal mitoses and atypical morphology, (2) with such arrangement as would justify presumption that continued cellular proliferation would result in the production of a structure compatible with the generally accepted concept of carcinomatous structure, and (3) with a round cell reaction in host tissues regularly observed to be most intense in the immediate vicinity of greatest epithelial abnormality.

Such a description is independent of the size of the lesion, in accordance with my conviction that one cell can constitute a cancer. It is independent of rate of growth, for progression may be so slow as never to interfere with the welfare of the host. It stresses the interpretation that cancer in the gross is solely the manifestation *en masse* of cellular growth. It enables malignancy to be defined in terms of cellular properties and conceives degrees of malignancy as pri-

marily ratios of growth-rates. It is a concept arrived at from the standpoint that an autonomous colony of cells may be investigated embryogenetically. It is eminently practical, for it encourages suspicion of tiny lesions, often misnamed verrucae or dykeratoses, which frequently possess potentiality for ultimately vastly harmful progression. Its therapeutic correlate is that minute lesions deserve significant attention and unrelenting destruction.

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BIBLIOGRAPHY

1. Bloch, Bruno: Cancers and Precancerous Affections from the Dermatological Viewpoint, *Cancer Rev.* 7:65 (February) 1932.
2. Cramer, W.: *Brit. J. Dermat.* 41:177, 1929.
3. Sulzberger, M. B., and Satenstein, D. L.: Erythroplasia of Queryrat, *Arch. Dermat. and Syph.* 28:798 (December) 1933.
4. Heimann, W. J.: Precancerous Dermatoses, *J. Cancer Research* 1:343 (July) 1916.
5. Sutton, Richard L., Jr.: Early Cutaneous Carcinoma, *J. A. M. A.* 104:433 (Feb. 9) 1935.

THROMBO-ANGIITIS OBLITERANS (BUERGER)

ITS RECOGNITION AND TREATMENT BY THE
PRACTITIONER

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Thrombo-angiitis obliterans is the term applied by Buerger to a disease of the peripheral blood vessels characterized by an inflammatory process which at the onset occludes particularly the deep and larger arteries and veins of the lower and upper extremities. Examination of the occluded vessels shows a widespread perivascular fibrosis binding together artery and its veins and at times the accompanying nerve, so that frequently these structures make up a dense rigid cord in which isolation of the vessels and nerves becomes impossible.

ETIOLOGY

The etiology of this interesting syndrome is still in doubt although abnormalities of the blood, blood vessels, sympathetic nervous system and glands of internal secretion have each been cited as playing a part in causation. Silbert¹⁷ postulates a hereditary transmitted defect, probably sex-linked in character, while Brown and Allen⁵ believe that an infectious or bacterial toxic substance is responsible. There are, however, a number of factors definitely known. Thrombo-angiitis obliterans is preponder-

From the Department of Surgery, Jewish Hospital.
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antly a disease of males, the ratio at the Mayo Clinic being about 98 per cent.⁸ It usually develops before rather than after midlife. The age incidence in the majority of cases is between 30 and 50 years with the average about 42 years. At one time it was thought to occur exclusively in Jews but the condition has since been reported frequently among non-Jews and probably occurs in individuals of every known nationality. That there is a predilection for Jews seems certain (28 per cent at the Mayo Clinic).⁴ The excessive use of tobacco appears to have a definite relationship to the disease though it may not be a primary etiologic agent. Silbert¹⁸ states that he has never seen a case in a man who was not a habitual smoker but occasional fairly typical cases have been described in people who have never used tobacco in any form.

CLINICAL COURSE

While patients with thrombo-angiitis obliterans present many and varied symptoms and phases of the disease most cases run a fairly typical clinical course. Usually the first and most common complaint is of intermittent claudication—pain or excessive fatigue on exercise. This is possibly best described as a “cramping” sensation and manifests itself in the muscles of the calf, under the knee, in the ankle or the arch of the foot. It is a mistake to think that the pain of claudication occurs only in the legs because many of these patients complain chiefly of pain or excessive fatigue in the feet, while a patient of mine with thrombo-angiitis obliterans involving the upper extremity found his chief difficulty at the onset due to readily induced attacks of “writer’s cramp.” Accompanying or following intermittent claudication there develop certain changes in the color of the limb which becomes pale when it is elevated above the level of the heart and a reddish cyanotic tinge when depressed. At this stage pain frequently occurs even at rest and is usually localized in the digits but occasionally in the distal part of the feet or hands. The patient now consults the orthopedist or the shoe salesman who prescribes arch supports for fallen arches, or under the delusion that the complaints are rheumatic the physician often uses remedies which may be of value in joint afflictions but cause the loss of valuable time in the recognition of the true source of pain.

In a smaller group of patients the first symptoms are those of a sudden occlusion

of a peripheral artery. This is usually indicated by severe pain in the foot, marked pallor and coldness. The pain may subside within several days and the pallor give way to rubor and cyanosis, with the subsequent development of the more typical syndrome of intermittent claudication. When one finds a sudden unexplained occlusion of a peripheral artery in a young adult male a tentative diagnosis of thrombo-angiitis obliterans is justified.

Quite characteristic too is the occurrence of a superficial phlebitis. This differs from other types of thrombophlebitis chiefly in its tendency to recur which may happen for years before other evidences of the disease, such as claudication or arterial occlusion, become manifest. The superficial veins involved are particularly those below the knee and the clinical evidence of inflammation usually lasts for from one week to a month, leaving in its wake a hard cord-like thrombosed vein. Occasionally tender inflamed circular zones suggest that the process in the vein is limited to the valves, and were termed cutaneous nodosities by Buerger. Examples of recurrent migrating phlebitis are found in about half of the cases⁵ and when found in the absence of any other ascribable cause warrant a presumptive diagnosis of thrombo-angiitis obliterans.

As the disease progresses other manifestations of impaired peripheral circulation become apparent. One of the most common is edema which is rare in the upper extremities but frequently found in the legs and feet, and is due not only to impaired venous return but also to the prolonged dependent posture, the position in which these patients derive the most comfort. Various trophic changes occur in the nails and soft parts; the former become ridged and split and fissures and ulcers appear in the skin. Many of these patients seek the chiropodist and are operated upon under the mistaken notion that their pain is due to a supposed ingrown toenail; but the removal of the nail leaves a non-healing ulcer, the pain becomes more persistent and severe, while the additional demands on a compromised circulation may eventuate in a more or less widespread gangrene. At other times the pain, redness and edema are misinterpreted as evidence of suppuration and incisions are made which fail to heal, the physician all too late suspecting the underlying vascular pathology.

The pain in thrombo-angiitis obliterans is fairly constant in its location for the indi-

vidual, but varies greatly in its intensity. When extreme it is often difficult to relieve by opiates; the patient sits up holding and rubbing the painful limb or allows it to hang over the side of his bed. He cannot sleep, loses interest in food, smokes incessantly to dull his misery, and finally becomes so completely demoralized by his suffering that he begs for amputation.

DIAGNOSIS

The diagnosis of thrombo-angiitis obliterans depends more upon a careful examination by a physician who is conscious of the frequency of peripheral vascular diseases than upon the employment of elaborate instrumental methods.

The history is of extreme importance and the recital of excessive weakness in an extremity, pain on exertion relieved by rest, and the reappearance of the pain upon further effort should immediately direct suspicion to the peripheral circulation. It is essential that the disease be recognized—as it usually can be—at an early stage if serious and oftentimes irremediable damage to the limb is to be prevented. The presence of these symptoms or of coldness and pallor of the limb or a thrombophlebitis unexplainable on some other basis is extremely suggestive, particularly when occurring in a young adult male, possibly of Jewish descent, and the consumer of tobacco in excessive amounts. The importance of a careful general physical investigation, including the search for foci of infection, the study of urine and blood and of course a Wassermann or Kahn test need hardly be emphasized. It is more germane to the purposes of this paper to indicate those objective methods of studying the circulation in the extremities that are at the disposal of every practitioner.

The limbs should be viewed in a good light and variations from the normal color noted. Edema or other swelling, trophic changes such as glossy or fissured skin, "corns" and callouses, irregular, ridged or poorly developed nails, should command attention. The red, tender linear markings along the course of inflamed superficial veins or the more localized cutaneous nodosities are of much significance, and the early and repeated appearance of a migrating phlebitis in thrombo-angiitis obliterans has already been alluded to. The diagnosis of "thrombophlebitis" without an attempt at finding the underlying cause is responsible for unnecessary delay in prosecuting treatment in this disease. The temperature of the af-

fected limb should be noted and compared with the opposite extremity. Any differences on the two sides as well as zones of sudden change should direct attention to possible circulatory impairment. One of the commonest findings in thrombo-angiitis obliterans is a drop in the temperature of the acral part which in the case of sudden arterial occlusion may be strikingly cold. These temperature changes may be registered by means of the skin thermometer or the electric thermocouple, but for practical purposes the hand of the examiner can detect with sufficient accuracy any significant variation.

Four arterial pulsations should be sought for in the lower extremity, viz., the femoral, popliteal, posterior tibial and dorsalis pedis. When the popliteal pulse cannot be felt the maneuver suggested by Buerger is often helpful; the patient is placed in the prone position, the leg flexed to the vertical and the muscles relaxed. The examining fingers in the upper half of the popliteal fossa can then readily palpate the artery by compressing it downward against the femur. In the upper extremity the brachial, radial and ulnar pulses should be similarly sought for. The presence or absence of these pulsations is one of the most valuable signs in the detection of vascular disease, and a careful study will frequently reveal closure of one or more of the peripheral vessels in the early stages of thrombo-angiitis obliterans, sometimes long before subjective symptoms direct the patient's attention to the limb. For further study and gradation of these vessels the use of the oscillometer^{13, 21} may be indicated.

The physician should then carefully study the effect of posture on the appearance of the extremity. With the foot pendant one may see a red flush extending over the toes, dorsum of the foot and even the distal part of the leg. This rubor is due to the reduced circulation secondary to vascular obstruction with a compensatory dilatation of the capillaries. It is characteristically found in thrombo-angiitis obliterans though also in certain other affections with closure of the larger arteries. When the leg is elevated, various degrees of blanching are observed and the rapidity with which the change is induced together with its extent is some index as to the degree of obstructive arterial disease. Samuels¹⁴ believes that this plantar ischemia is an early diagnostic sign in Buerger's disease and suggests searching for it in doubtful cases by elevat-

ing the limb and having the patient rapidly flex and extend the foot at the ankle, thereby utilizing the action of the muscles as well as the effect of gravity and the obstructed arteries in demonstrating the insufficient vascular flow.

Buerger employed many of the foregoing facts in estimating the angle of circulatory sufficiency which is "based on the supposition that the normal limb, when elevated so as to be perpendicular to the horizontal plane, that is 180 degrees, still retains most of its color. When the circulatory mechanism is defective, and the limb is elevated to the vertical, a variable degree of blanching of the foot occurs. If the leg is then gradually depressed, the angle at which a reddish hue returns (angle of circulatory sufficiency) will be found to vary" with the state of the vessels permitting the reestablishment of visible circulation in the skin.

Other tests for estimating the state of the peripheral circulation have been described. The use of histamine or normal salt solution intradermally is occasionally of value. In my experience the information yielded has been chiefly corroborative.

It must now be apparent that the simple, unqualified diagnosis of intermittent claudication, of phlebitis or of gangrene is no longer tenable. In practically every instance a careful search for the basic pathology will reveal the causative factor and suggest the institution of appropriate methods of treatment.

In the differentiation of thrombo-angiitis obliterans five common sources of error need to be considered: Flat feet, rheumatism, local inflammation, peripheral arterio-

sclerosis and Raynaud's disease. In the early stages of the disease the most common diagnostic error is to ascribe the pain in the foot to flat foot or "fallen arches." The methods of study previously outlined should readily prove the symptoms to be of vascular origin but in case of doubt the failure to obtain prompt relief from wearing arch supports should clinch the diagnosis. There should be no difficulty in differentiation from rheumatism because the "symptoms due to arthritic lesions of the extremities are present both during rest and exercise" and "relief is not obtained by short periods of rest. The history of effects of weather and definite attacks are further evidence of the arthritic nature of the process."⁵ Confusion with local inflammatory processes should not arise because of the absence of increased heat at the site of redness, the presence of rubor in other digits and the disappearance of color upon elevation of the limb.

The differentiation from peripheral arteriosclerosis and Raynaud's disease is summarized in the accompanying table 1. It is important that these diseases be distinguished for their prognosis as well as treatment is not the same.

TREATMENT

Successful treatment of Buerger's disease depends upon our recognition of four factors: The chronicity of the disease, its inflammatory nature, the tendency toward spontaneous remissions and the eventual diminution or disappearance of all evidences of an active process. Our attempts are based upon the fact that with appropriate treat-

Table 1. *Differential Diagnosis of Peripheral Vascular Diseases*
(Modified from Brown and Allen, Buerger and Silbert)

| | <i>Thrombo-Angiitis Obliterans</i> | <i>Arteriosclerosis</i> | <i>Raynaud's Disease</i> |
|---------------------------|--|---|---------------------------------|
| Age | Chiefly between 30 and 50 years. Average 42 years | Chiefly after midlife | Chiefly between 17 and 35 years |
| Sex | Males about 98 per cent | Males predominate. May be either sex | Female 95 per cent |
| Race | Jews about 28 per cent | Any | Any |
| Rest pain | Often very severe | Usually mild | Usually absent |
| Intermittent claudication | Usually present | Usually present | Absent |
| General appearance | Often younger than age | Often older than age | Normal |
| Upper extremities | Frequently involved | Seldom involved | Frequently involved |
| Postural changes | Rubor when dependent. Pallor on elevation | Rubor when dependent. Pallor on elevation | Absent |
| Edema | Frequent | Uncommon | Absent |
| Arteries | Pulseless or of diminished volume. Coronary sclerosis rare | Pulseless or of diminished volume. Coronary sclerosis frequent | Normal |
| Veins | Frequently involved. Often migrating phlebitis | Rarely involved | Normal |
| Roentgenograms of vessels | Usually negative. Aorta normal | Frequently calcification of vessels. Possibly elongation of aorta | Normal |

ment the patient can be tided over the period of impending gangrene until sufficient canalization of the vessels and adequate collateral circulation restore the vascular competency of the limb. It is a fairly safe rule that when many therapeutic measures are vaunted in the treatment of a disease none is specific, and this is undeniably true in thrombo-angiitis obliterans. I shall not dwell on the numerous procedures advocated but mention only those whose merits I have seen exemplified or which have been of outstanding value in a large series of cases.

First and foremost it is peremptory that tobacco be discontinued and cessation of its use is the most important part of the treatment. This has been constantly stressed by Samuel,¹⁶ Silbert²⁰ and others, and I am in complete accord with their emphasis on its deleterious effects in this condition. I have repeatedly seen exacerbations of symptoms and progression of the disease when smoking was resumed, while its discontinuance has regularly resulted in arrest unless too far advanced. There is abundant clinical and experimental evidence that tobacco by its vasoconstricting action causes a depletion of the reserve collateral circulation.

The administration of large amounts of fluids, as Ringer's solution and normal salt solution, has been used with dubious success but in 1926 Silbert¹⁷ suggested the intravenous injection of hypertonic (5 per cent) sodium chloride solution and in subsequent papers^{19, 20} has shown the excellent results in a very large series of cases. The properly prepared solution is allowed to flow slowly by gravity into a superficial vein, preferably in the arm. One hundred fifty cc. is given at the first treatment and 300 cc. subsequently, the injections being administered three times a week at the beginning, later twice weekly and the intervals are further increased as the patient improves. "The duration of treatment varies from six weeks to two years depending upon the severity of the individual case. Patients are discharged when all symptoms have disappeared or when the maximum possible improvement has been obtained." (Silbert.²⁰) I have given many injections with no untoward result; the same vein can be employed repeatedly unless it is severely traumatized or thrombosed by the continued use of tobacco. As to the advantages of this method I can do no better than quote the words of Silbert: "It is a simple form of treatment, requiring no expert knowledge or technique, and can be carried out by any

physician in his office. It subjects the patient to no dangerous operation, requires no hospitalization, and unless the condition is advanced, does not even require cessation of employment. It is absolutely safe, and requires for its successful use only reasonable care, persistence and patience."

Various other measures having for their aim the improvement of collateral circulation and the increasing of blood supply are at times of value. Buerger employs certain postural exercises. The patient lies in bed and elevates the affected limb to from 60 degrees to 90 degrees above the horizontal for 30 seconds to 3 minutes. As soon as blanching occurs the limb is allowed to hang over the edge of the bed for from 2 to 5 minutes until reactionary rubor or hyperemia sets in and a good red color established. The extremity is then placed in the horizontal position for about 3 to 5 minutes. These exercises should be taken for fifteen minute periods three or more times daily. I have utilized this procedure for years in thrombo-angiitis obliterans as well as in other obstructive vascular states and feel that it is of definite value in those patients who carry out the details faithfully and persistently. However, it has been my experience that too often the very individuals in whom it is indicated become lax and indifferent or grow discouraged because of failure to obtain prompt improvement.

A simple procedure is to warm the extremities by means of some baking apparatus capable of producing mild heat, such as may be constructed by a cradle from which two ordinary carbon light bulbs are suspended. The amount of exposure is gradually increased to three, four or more hours a day, due precautions being observed to prevent burning. Frequently much relief is derived.

The use of contrast baths, by which the extremity is immersed alternately in hot and cold water is at times of value, chiefly in the absence of open lesions. It is rather severe treatment for some of these patients and may easily be overdone.

It is well known that the intravenous administration of foreign protein produces a rise in body temperature with a cutaneous vasodilatation. A simple method of availing oneself of this method is by the injection of typhoid vaccine; there is no question that at times one can obtain marked improvement of trophic lesions, ulcers and gangrene, and amelioration of rest pain. I have had patients object to the chills and other un-

pleasant sequelae but Brown⁴ feels these can be minimized by the use of typhoid antigen H (Lilly) and believes the method efficacious. It should not be employed in the presence of marked arteriosclerosis because of the danger of thrombosis.

In a few cases I tried injections of acetylcholine hydrochloride but obtained no satisfactory results. With the use of pancreatic tissue I have had no experience. It is said to be of value in increasing the tolerance to exercise.

The value of Bier's method of obtaining hyperemia in the treatment of vascular diseases has long been known. In the last few years some extremely important contributions have been made by Landis,⁹ Reid¹² and Hermann and Reid⁷ in which they avail themselves of this principle and exert alternate suction and pressure on the limb which is enclosed for purposes of treatment in an especially constructed box or jar. As Landis points out, treatment to be successful must be begun before the pathologic conditions have too greatly reduced the normal capacity of the blood vessels to dilate. The authors report glowing results in a variety of conditions due to vascular obstruction or stasis, and the method holds much promise in these circulatory disorders.

Some of the most noteworthy advances of the past decade have been in the realm of the surgery of the sympathetic system. Influenced by numerous articles on periarterial sympathectomy the operation was performed upon many sufferers from thrombo-angiitis obliterans with almost uniformly poor results. I essayed it some years ago without influencing in the slightest the progress of the disease. Today it is the consensus of opinion that this operation has no place in the treatment of Buerger's disease. The operative attack on the sympathetic ganglia cannot be dismissed so lightly and certain workers, particularly those at the Mayo Clinic^{1, 2, 4} believe that a sympathetic ganglionectomy is indicated in a small but definite group which consists of the slowly progressive cases that cannot sacrifice the time required to rest in bed and receive more conservative treatment. Brown³ writes that because of the limited time at their disposal in handling patients anxious to be restored to their working capacity, the Mayo Clinic must accomplish in two or three weeks what other places might take as many months to do. He feels that the five year follow-up is very encouraging and that subsequent ulcers and amputation are greatly decreased. The

rationale of operations on the sympathetic system is briefly that in addition to the occlusive process in the blood vessels there is a superimposed vasospasm which can be abolished by a ganglionectomy. According to Brown⁴ the operation is contraindicated (1) unless a satisfactory grade of vasodilatation is possible, (2) if there is coronary sclerosis, and (3) for the relief of pain caused by ulcer, gangrene or ischemic neuritis. He claims that the value of this method of treatment "is the high degree of protection it affords to the extremities during relapses, when the circulation of the extremities is temporarily at a low level." Adson¹ reports that in a group of 90 patients thus treated 5 per cent came to amputation. For purposes of comparison it is worth noting that in a much larger series of patients treated by Silbert²⁰ with hypertonic salt solution only 7.6 per cent had an amputation, and this includes even those patients who had an insufficient amount or duration of treatment. Both the latter author and Samuels¹⁵ feel that vasodilating operations are of doubtful and temporary effect. Leriche¹¹ whose many reports have done so much to stimulate interest in the rôle of the sympathetic system writes, "I am more and more led to think that no sympathetic operation is of value in Buerger's disease."

The pain in thrombo-angiitis obliterans usually subsides when appropriate measures (bed rest with the limb in the horizontal position, bakes, cessation of smoking, and administration of hypertonic saline) are instituted. As previously stated, some patients obtain much relief from the use of foreign protein (typhoid vaccine) while a smaller percentage requires opiates until the acute stage is over. Occasionally alcohol by mouth is even more effective. No longer, however, is it necessary to amputate a limb for pain alone, for in the small group whose intractable suffering is secondary to trophic ulcers or gangrene, the section of peripheral nerves and their immediate suture, as proposed by Laskey and Silbert,¹⁰ offers a simple solution of the problem until therapeutic measures have enhanced the peripheral circulation.

From the foregoing it may be gleaned that the indications for amputation are much narrower than formerly. They are practically only two, (1) the presence of extensive gangrene preventing the saving of a useful foot, and (2) a spreading infection threatening the patient's life. When one considers the frequency of ulcers of the toes and feet

it is remarkable that spreading infections are not encountered more often. The gangrene of thrombo-angiitis obliterans tends to be a self-limiting process and extreme conservatism, as pointed out by Samuels,¹⁶ even in the severest forms of gangrene, is usually rewarded by an intact extremity. In properly treated cases amputations if required may often be performed below the knee and in Silbert's latest report, out of 19 patients requiring amputation only 3 were performed in the thigh.

Finally, a word is necessary concerning instructions to the patient for the care of his feet in addition to the measures already alluded to. It may be summed up, "Keep your feet clean, dry and warm," but it is usually necessary to give the patient specific details about the factors necessary to attain this. The shoes should be properly fitting and not too tight, and any corns and callouses must not be cut. It is advisable to avoid circular garters or any other measure that might interfere with circulation, and the employment of any irritant drug should be only under the direction of the physician.

After all, possibly the most accurate criterion of the progress that has been made in the treatment of Buerger's disease is the decrease in the number of cases requiring amputation. Out of 460 untreated cases reported by Silbert¹⁹ in 1930, 64 per cent had an amputation within the first five years of the disease. In his latest paper²⁰ 309 patients who had stopped smoking and were restored to good condition by injections of hypertonic salt solution were repeatedly examined during a period of from two to ten years after treatment was started. In the entire group not a single amputation had been necessary.

It is hoped that this paper has indicated that contrary to the ideas frequently held, the early diagnosis of thrombo-angiitis obliterans and its proper treatment will lead to the arrest of the disease, the prevention of its recurrence, the avoidance of amputations, and the restoration of the patient to health and economic usefulness.

University Club Building.

BIBLIOGRAPHY

1. Adson, A. W.: The Results of Sympathectomy in the Treatment of Peripheral Vascular Diseases, Hirschsprung's Disease, and Cord Bladder, *Ann. Int. Med.* **6**:1044, 1933.
2. Adson, A. W., and Brown, G. E.: Thrombo-Angiitis Obliterans; Results of Sympathectomy, *J. A. M. A.* **99**:529, 1932.
3. Brown, G. E.: Personal Communication.
4. Brown, G. E.: Thrombo-Angiitis Obliterans, *Surg. Gynec. & Obst.* **58**:297, 1934.
5. Brown, G. E., and Allen, E. V.: Thrombo-Angiitis Obliterans, Philadelphia, W. B. Saunders Company, 1928.

6. Buerger, L.: The Circulatory Disturbances of the Extremities, Philadelphia, W. B. Saunders Company, 1924.
7. Herrmann, L. G., and Reid, M. R.: Conservative Treatment of Arteriosclerotic Peripheral Vascular Diseases, *Ann. Surg.* **100**:750, 1934.
8. Horton, B. T., and Brown, G. E.: Thrombo-Angiitis Obliterans Among Women, *Arch. Int. Med.* **50**:884, 1932.
9. Landis, E. M.: Observations on the Diagnosis and Treatment of Peripheral Vascular Disease, *Ann. Int. Med.* **8**:282, 1934.
10. Laskey, N. F., and Silbert, S.: Thrombo-Angiitis Obliterans; Relief of Pain by Peripheral Nerve Section, *Ann. Surg.* **98**:55, 1933.
11. Leriche, R.: Nelson's Loose Leaf Living Surgery, **3**:804, 1927.
12. Reid, M. R.: Diagnosis and Treatment of Peripheral Vascular Diseases, *Am. J. Surg.* **24**:11, 1934.
13. Samuels, S. S.: The Value of Oscillometry, *J. A. M. A.* **88**:1780, 1927.
14. Samuels, S. S.: Early Diagnosis of Thrombo-Angiitis Obliterans, *J. A. M. A.* **92**:1571, 1929.
15. Samuels, S. S.: Newer Aspects of Thrombo-Angiitis Obliterans, *Long Island M. J.* **23**:153, 1929.
16. Samuels, S. S.: Treatment of Gangrene Due to Thrombo-Angiitis Obliterans, *J. A. M. A.* **96**:751, 1931.
17. Silbert, S.: The Treatment of Thrombo-Angiitis Obliterans, *J. A. M. A.* **86**:1759, 1926.
18. Silbert, S.: Studies on Thrombo-Angiitis Obliterans. (Buerger) II. The Effectiveness of Therapeutic Procedures, *J. A. M. A.* **89**:964, 1927.
19. Silbert, S.: Thrombo-Angiitis Obliterans. (Buerger) V. Results of Treatment with Repeated Injections of Hypertonic Salt Solution, *J. A. M. A.* **94**:1730, 1930.
20. Silbert, S.: Thrombo-Angiitis Obliterans. (Buerger) XI. *Surg. Gynec. & Obst.* (To be published.)
21. Silbert, S., and Samuels, S. S.: Thrombo-Angiitis Obliterans. (Buerger) III. Prognostic Value of the Oscillometer, *J. A. M. A.* **90**:831, 1928.

THE DIAGNOSIS OF "NEUROSIS"

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Throughout my student days I was much impressed with the fact that every one of my medical teachers, regardless of specialty, would sound the warning that to make a diagnosis of neurosis was dangerous and a sign of ignorance. Some of them maintained it was done in order to impress upon the student not to dodge a diagnosis in this "easy way." Later, however, in practice, I found that hesitancy and shyness in this respect was not something fictitious created for teaching purposes, but an actuality. Every physician can and is always ready to tell you of the case he diagnosed neurosis, much to his disappointment.

The general practitioner will tell you about his patient with "gastric neurosis" who died of carcinoma of the stomach. The gynecologist had a neurotic woman who complained of all her original symptoms several years after a panhysterectomy, but he has just concluded that the persistence of her symptoms was caused by a residual pelvic inflammation because local treatment cured her. The neurologist will tell you of his neurotic who died of brain tumor. They all wish they had never made such a diagnosis. But what do they do in the future? Either they make the same diagnosis and fail again, for the very same rea-

sons for which they had failed in the past, or they defer the diagnosis and tell the patient to return for a check up, or—and this is unpardonable—they tell the patient to go home and forget about it; such advice is unfair to the patient with organic disease, and it certainly doesn't cure the neurotic. Naturally, the general practitioner with his busy practice, and in view of the wide scope of his field, should and does make the greatest number of mistakes in this regard. Next to him come the different specialists, and finally the neuropsychiatrist, who rarely (and it should be rarely) diagnoses "neurosis" erroneously too.

Can we avoid or minimize these mistakes, or must we wait for a "negative autopsy" to prove that we had diagnosed the neurotic rightly? To be sure, there will always be such cases. Occasionally the history and physical are not obtainable, and some diseases are manifested by indefinite and inconstant symptoms in the onset; all this should be kept in mind. However, there are several principal reasons why we fail to diagnose the neurotic patient with any degree of safety. First comes the inability to detect or interpret some actual findings which the patient presents. If one fails to detect an abdominal mass which would clinch the diagnosis, he has obviously failed due to his lack of skill or thoroughness; on the other hand, if one does not feel that gastric hyperacidity, and pain after meals, etc., are sufficient in a given case to warrant the diagnosis of peptic ulcer, he is entitled to defer the diagnosis, but is not to call it neurosis or anything else. Secondly, we often try to diagnose neurosis or organic disease alone, when actually both are present. The complex social structure of modern life has increased the number of neurotics immensely, so that we must expect to find both neurosis and organic disease in quite a few of our patients. In fact, a neurotic element may accentuate, or distort the physical examination as well as the history. The proper diagnosis of such cases is the therapeutic test. If after treating the neurosis a number of the symptoms have cleared up, and the patient has enough findings left over to form a definite organic syndrome, a double diagnosis is more or less obvious. In addition some organic conditions can affect one's relations toward himself or society, so as to actually produce a neurosis (Adler's Theory of Organic Inferiority.) Finally, and most important of all, is the lack of knowledge as to what we

term a neurosis. One cannot differentiate between two conditions, only one of which he knows well, and yet how many of us know as much about neuroses as we do about colitis, appendicitis, biliary disease, etc.

What then must we know about the patient to classify him as neurotic? Without going into details about the many theories and definitions of neurosis one may say, in general, that it is an abnormal type of behavior (social, psychological or physiological) resulting from a maladjustment of the patient toward himself or toward his environment. Here is a girl who feels that she must not marry, so that she may care for her aging mother; or the boy of a mother of fifteen children who at the age of 10 jumps in her lap and nurses at her breast when he gets thirsty (this mother had been lactating for years); or the girl of 30 with oligomenorrhea, who comes in very much perturbed "because she does not flow like other girls." These are potential, future neurotics and can be classed as such, long before they or their neighbors begin to complain. They will be neurotics regardless of whatever organic condition they may exhibit later in life. In other words, the history alone is necessary and sufficient for the diagnosis, while physical examination and laboratory tests are useful only from the point of view of differential diagnosis. I cannot emphasize this point too much. Of course one must know how to take and interpret such histories; he must know normal and abnormal behavior; he must be familiar with the laws which govern our evolution as social beings; finally, he must have intuition or psychological sense.

Now a word about the symptoms of the neurotic patient. I should say they are worthless for clinching the diagnosis. The neurotic will complain predominantly of gastro-intestinal or genito-urinary, or cardiovascular, or vasomotor, or other symptoms; it is said, that what characterizes the neurotic is the multitude and variety of his complaints, but I feel that upon analysis it will be found that one particular system of organs will invariably stand out; this is why every specialty has its quota of neurotics. I am inclined to attribute a definite basis for this peculiar grouping of these patients; perhaps the boy of ten who still nurses his mother will develop gastro-intestinal symptoms, while the spinster will develop pelvic symptoms. In this sense I consider such "vague" terms as "gastric neurosis," "vaso-

motor neurosis" or "pelvic neurosis" as quite proper and significant. To put it in other words, perhaps the system of organs the patient chooses to complain of, is a sort of *locus minoris resistentiae* in his psychosocial make up. The same may be said in regard to the physical findings: if the patient complains of his abdomen, we find no mass, tenderness, distention or fluid; if she complains of her pelvis, we find nothing there. That is, we find nothing wrong with the organs of which the neurotic complains. On the other hand, unquestionable physical and laboratory findings do not exclude their neurotic nature. For example, while the peptic ulcer patient will show consistently a gastric hyperacidity or hypoacidity, the neurotic may show hyperacidity one day and hypoacidity upon subsequent examination. Again in attempting to treat a woman presenting findings of pelvic congestion, without demonstrable cause, we may be helpless unless we are able to elicit some such obscure factor as the practice of coitus interruptus.

In concluding I wish to say this: 1. Neurosis is a definite disease entity which can be diagnosed as safely as any other disease. 2. There is no specialty in which diagnosis of neurosis does not have its place. 3. Do not hesitate to diagnose it, but learn how to diagnose it. 4. Some disturbed psychosocial factor is present in every case of neurosis. 5. It takes more than knowledge to detect the neurotic patient; it takes understanding.

1314 Professional Building.

DIAGNOSIS OF TRICHINOSIS, WITH ESPECIAL REFERENCE TO SKIN AND PRECIPITIN TESTS

Wesley W. Spink and Donald L. Augustine, Boston (Journal A. M. A., May 18, 1935), emphasize that trichinosis is not an uncommon disease. Its recognition and correct diagnosis depend on a careful history of the patient's illness. In thirteen of their cases they learned that other members of the family were ill. The most reliable laboratory procedure is the careful study of blood smears for eosinophilia. Mildly ill persons and sporadic cases constitute a serious phase of the trichinosis problem. It is in these cases that the skin and precipitin tests are of great value. Patients with slight fever, a slight eosinophilia, and vague aches and pains extending over a period of several weeks should have skin and precipitin tests done for trichinosis. The skin test usually becomes positive about the seventeenth day of the infection, and the precipitin test usually at the end of the fourth week. These tests are of especial diagnostic aid in the early stages of the disease, when they are first negative and later become positive. Mild, sporadic and chronic cases of trichinosis were often detected only by these tests. Trichinosis is a public health problem. The best available method for reducing the incidence of the disease is the thorough cooking of all pork products.

DIABETIC COMA WITHOUT THE PRESENCE OF DIACETIC ACID OR ACETONE IN THE URINE

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From time to time cases of coma have been reported in which the clinical symptoms and the result of treatment by insulin apparently proved them to be cases of diabetic coma (diabetic acidosis); and yet these cases did not show the presence of diacetic acid or acetone in the urine. That is, the urine gave a negative reaction with ferric chloride and with nitroprusside.

Physiological chemistry teaches that the occurrence of diabetic coma necessitates the accumulation of large amounts of acetone bodies in the blood, and that of necessity acetone at any rate will thence diffuse into the urine where it will reveal itself by a positive nitroprusside reaction. In accordance with this theory it has been concluded that if the urine under these circumstances gives a negative reaction with iron and with nitroprusside, there is something wrong with the reagents used or with the manner of their employment.

I submit a report of the following case of coma as one in which clinical signs and laboratory tests as well as the favorable response to insulin treatment warranted the diagnosis of diabetic (ketosis) coma. Nevertheless, the urine of this patient while in deep coma was negative for diacetic acid and acetone when tested for by the customary ferric chloride and nitroprusside tests. To avoid all possibility of argument the tests were done independently in two different laboratories. The reagents used had given positive diacetic acid and acetone tests with other urines.

Had the negative iron and nitroprusside tests misled us, and had we on that account omitted adequate insulin administration our patient would have died. We submit the clinical record of our case which speaks for itself.

REPORT OF CASE

Miss X., aged 65, single, height 5 ft., weight 131 lbs., was admitted to St. Mary's Hospital at 4 p. m., September 30, 1934. She had been a severe diabetic for several years. By proper diet and insulin dosage she had been kept sugar free most of the time. Nevertheless during the last five years patient had been in coma three times, due no doubt to some inadvertent error on her part. Large doses of insulin had revived her in each instance. Of late her diet

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had consisted of protein 66 G., fat 143 G., carbohydrate 120 G., in twenty-four hours. Sixty units of insulin had been her daily dose. On September 29 she could not eat all her food. She vomited several times, was talkative and at times irrational. On the following day, September 30, she started to become drowsy but for breakfast was able to eat toast, orange juice and eggs. Before this meal her sister had given patient 40 units of insulin hypodermically. At 9:30 a. m. the drowsiness had deepened so her sister gave 30 additional units of insulin together with the juice of three oranges. At 2 p. m. the coma was complete. The family physician had been sent for in the meantime. He found the urine to contain 4 plus sugar. He gave 40 units of insulin and ordered patient to St. Mary's Hospital where she arrived at 4 p. m. Patient was now totally unconscious. She could not respond to questions and was unable to swallow even water. She vomited frequently, a blackish fluid which was found to be blood. Her temperature was 99°. Her pulse was 142 and very weak. The blood sugar was 450 mg. The urine contained 4 plus sugar, 1 plus albumen, but no diacetic acid or acetone. The tests used were the prescribed ferric chloride and nitroprusside tests. In order to avoid error we had the urine tested for acetone and diacetic acid in an independent laboratory in addition to the tests made in the regular hospital laboratory. The report as to acetone bodies came back negative from both laboratories. The reagents used in the second laboratory had given positive reactions for diacetic acid and acetone in other urines. At 5 p. m. patient received 10 units of insulin hypodermically and 2 ampules of caffeine sodium benzoate intravenously. Fifteen minutes later an ampule of digalen was given hypodermically. At 6 p. m. urine showed 4 plus sugar but no diacetic acid or acetone. We now started an intravenous injection of 500 Gm. of a 10 per cent glucose solution containing 20 units of insulin. At 9:30 p. m. the blood sugar was 230 mg. At 10 p. m. 20 units of insulin were given hypodermically. Next day, October 1, at 2 a. m., urine was free from sugar and patient was regaining consciousness. At 4 a. m. the urine was still sugar free and blood sugar was 143 mg. At 3:15 p. m. urine was again 3 plus sugar. Ten units of insulin and 100 Gm. orange juice were given. At 7 p. m. urine was 4 plus sugar but still free from diacetic acid and acetone. The blood sugar was now 500 mg. Thirty units of insulin were given. At 10 p. m. urine showed 4 plus sugar but no acetone or diacetic acid. Fifteen units of insulin were now given. After that, patient required from 50 to 68 units of insulin a day to keep the urine sugar free most of the time while patient was in the hospital. She went home October 10, 1934, on a diet of P. 67 Gm., C. 117 Gm., F. 143 Gm., and 68 units of insulin daily.

Besides suffering from diabetic coma on admission to the hospital patient also had acute gastric dilatation. To this was due the vomiting of black blood which we have alluded to above. Besides, there was great tympanitic distention of the upper part of the abdomen. This condition we treated simultaneously with the coma by frequent gastric lavage through a retained nasal catheter, as is practised so successfully by surgeons where gastric dilatation occurs

after surgical operations. We believe this gastric dilatation unless successfully combatted would of its own accord have led to a fatal issue. That diabetic coma (acidosis) may cause acute dilatation of the stomach just as surgical procedures may is of great practical significance. It may perhaps help to solve the problem of the as yet unknown etiology of that much dreaded complication of surgical operations. We know that certain details of the treatment of our coma case may be open to criticism but we felt it our duty to chronicle the events just as they happened.

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THE CARDIAC HAZARDS OF GALLBLADDER SURGERY

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"No surgeon no matter how skillful or proficient he may be, should ever consider himself beyond the possibility of error or accident. While it is human to err, it is inhuman not to try, if possible, to protect those who entrust their lives into our hands from avoidable failures and dangers."

This quotation from the recent book "Surgical Errors and Safeguards" by Thorek,¹ could not be more apropos if written expressly about gallbladder patients. Why the concern with reference to the heart in gallbladder surgery?

First, it is the experience of pathologists to autopsy cases subjected to surgery of the gallbladder, and to find the death is due to heart disease. In many of these cases no gallbladder pathology is found.

Second, while it is true there are many other dangers in gallbladder surgery, such as hemorrhage, peritonitis, pulmonary complications, the hepatorenal complex, etc., Deaver² states that the most common cause of death is cardiovascular disease. In reporting the results following gallbladder surgery at the Lankenau Hospital he named "coronary embolism, coronary thrombosis and cardiac dilatation" as the factors. He admits that the last cause may be disputable as a disease entity but states emphatically that chronic biliary disease does affect the myocardium.³ Unfortunately, in his series he does not give exact percentages or the number of autopsies.

Read before the Jackson County Medical Society, October 9, 1934.

Stanton⁴ tried to evaluate the various causes of 500 deaths following gallbladder operations. He admits of over 15 per cent unquestionable heart deaths and says this figure is probably too low. The number of postmortem examinations is not given and clinical manifestations are relied upon; obviously an inexact method.

As a third reason for this study, we wish to present certain evidence that there may be a direct relationship between heart disease and gallbladder disease. The idea of this relationship of gallbladder disease and cardiac disease is not a new one and the difficulties in making a differential diagnosis between cardiac and gallbladder symptoms has been recognized for many years.

Many of the older clinical surgeons and teachers, such as Mackenzie,⁵ Osler,⁶ Rolleston⁷ and Moynihan, recognized the difficulty of making a differential diagnosis between cardiac and gallbladder disease, and associated the cause of actual disease in these two organs as being due to age, infection and degenerative changes. Most of them felt that it was a "fatty degeneration" or a "chronic myocarditis," and several have extolled the virtues of bed rest and digitalis preoperatively. Most of their work depended on a clinical basis and their findings were not substantiated by roentgen ray or electrocardiographic studies but could be proved only on the operating table or at autopsy.

In the past decade, many articles^{8,9,10,11,12,13} point out the impossibility of a differential diagnosis in the two conditions on clinical grounds alone. These presentations range from the so-called "abdominal masquerades" of heart disease to the "left sided anginal attacks" of gall stones. Let us consider the problem by establishing three groups as follows:

1. Definite cardiac disease with symptoms referable to the gallbladder or gastro-intestinal tract.

2. Definite gallbladder disease with clinical symptoms of a cardiac nature.

3. Definite cardiac and gallbladder disease coexistent in the same patient.

Willius and Fitzpatrick¹⁴ report a considerable series of cardiac cases improved both clinically and electrocardiographically by surgical treatment of the gallbladder. Lian,¹⁵ Welchman and Heimann,¹⁶ Welch,¹⁷ Besesen,¹⁸ Roberts,¹⁹ Graham,²⁰ Leech,²¹ Katz²² and many others stress the same point. So much for the probability of a direct clinical association between the two conditions.

In considering the third group mentioned above, namely those cases with definite gallbladder and cardiac disease, we are confronted with this problem: is there an underlying metabolic aberration or an infectious basis which predisposes to the causation of the two conditions? This cannot be answered dogmatically but an approach can be made by the analysis of clinical and post-mortem data.

As far back as 1893 Brockbank²³ in 1347 routine autopsies found gall stones in 5.4 per cent of the cases without cardiac disease. He found gall stones in 10 per cent of the cases with cardiac disease. It must be obvious that the phrase "cardiac disease" at that time did not include some cases of coronary disease which would be classed as such at this time.

The average incidence of gall stones in routine postmortem examinations, as given in the Nelson Loose Leaf System²⁴ in a series of 80,802 autopsies, is 5.9 per cent which is a close approximation to the figure of Brockbank. Hesse²⁵ in 17,402 autopsies found that 84 per cent of the cases with stones were free of gallbladder symptoms.

Miller²⁶ in a most excellent article told of studies of the postmortem records of ten years in the London Hospital in the hope of finding what association exists between gallbladder disease and cardiac disease. He found 350 cases of nonmalignant disease of the gallbladder, 202 in females and 148 in males. The details of the arteries and of the myocardium were noted and compared with the same age groups whose gallbladders were found to be normal.

Table 1. Incidence of Cardiac Disease

| Age | Males | |
|-------------|-------------------|----------------------|
| | Gallbladder Cases | Nongallbladder Cases |
| 21-40 | 0 | 0 |
| 41-50 | 3 in 14—21+% | 7 in 133—5+% |
| 51-60 | 22 in 54—40+% | 14 in 176—8% |
| 61-70 | 29 in 49—59+% | 24 in 142—16+% |
| 71 and over | 13 in 19—68+% | 30 in 53—56+% |
| Age | Females | |
| | Gallbladder Cases | Nongallbladder Cases |
| 21-40 | 0 | 0 |
| 41-50 | 3 in 38—7+% | 3 in 108—2+% |
| 51-60 | 14 in 69—20+% | 17 in 214—7+% |
| 61-70 | 25 in 60—41+% | 28 in 110—25+% |
| 71 and over | 18 in 28—64+% | 17 in 23—73+% |

From these figures he concludes that coronary disease is much more common in the gallbladder cases, especially in males between fifty and seventy. He believes that in patients who have gallbladder disease there is a greater frequency of arterial degeneration and that the degree of this degeneration is higher in cases of gallbladder disease.

Dr. Ferdinand Helwig of Kansas City, in

a personal communication, reports that in 1000 routine postmortem examinations he has found eighty-eight cases of definite coronary disease. Eleven, or one out of eight, have had "abdominal masquerades." Approximately 50 per cent of these eighty-eight cases of coronary disease presented evidence of gallbladder disease.

From the preceding it would seem that gall stones are present in about 5 per cent of routine autopsies; that the majority of gall stones cause no symptoms; that the symptoms of heart and gallbladder disease are difficult to differentiate properly without laboratory methods; that the age group of the two diseases is about the same but that the percentage of heart disease is higher in cases having diseased gallbladders than in those with normal gallbladders. I wish to present a few clinical cases which are representative and which emphasize the points made above.

The first case is a patient seen by a general practitioner who was convinced that the patient was suffering from gall stone colic, and he administered morphine hypodermically. He was called back a few hours later and gave another hypodermic. In the course of a few days the patient was removed to a hospital in preparation for a gallbladder operation. Before operation the patient developed pulmonary edema and died. Autopsy revealed no gallbladder pathology; marked coronary disease was present.

The second patient was seen repeatedly by a competent clinician. A diagnosis was made of gall stone colic and chronic dyspepsia probably due to gall stones. The patient was taken to a hospital and died under the anaesthetic before operation. Postmortem revealed no gallbladder pathology. Marked coronary disease was present.

The third case was seen at home by a physician with the history and physical findings suggesting acute disease of the gallbladder, or ruptured peptic ulcer. At operation no gallbladder or stomach pathology was found. The next day at postmortem examination extensive coronary infarction and mural thrombi were found.

The fourth patient is an elderly professional man who was known to have gall stone attacks for years. He was also known to have coronary disease. Apparently the gallbladder episodes precipitated the cardiac attacks and the anginal seizures. After due consideration and deliberate preparation, cholecystectomy was done. The patient has

been relieved for over one year of both the gallbladder and anginal attacks.

In a hurried analysis of these four cases we find the first case is an example of the so-called "abdominal masquerade" of heart disease, causing the surgeon considerable embarrassment.

The second case is another "abdominal masquerade" of cardiac disease and very difficult to explain to the relatives.

The third case is another "abdominal masquerade" and mighty hard for a conscientious surgeon to forget.

The fourth case is the kind that every surgeon loves to tell about.

In what respect is the fourth case different from the first three?

Primarily, this case had been studied carefully, not only from a roentgenological standpoint but also from an electrocardiographic basis. The surgeon had evidence of definite gallbladder disease. He also had evidence of definite coronary disease. The history itself seemed to indicate that the gallbladder disease was partially if not totally responsible for the cardiac disease. This study enabled the surgeon to advise the patient and the relatives of the serious situation and the possible outcome. This gave him a splendid opportunity to make an attempt at least in preparing his patient for surgery and to make added efforts to see that all possible safeguards were taken.

These case histories are not ancient histories but actually have occurred in the better hospitals in Kansas City within the last few years. Needless to say, these cases are representative of tens and hundreds, perhaps, about which we hear nothing.

There is a certain amount of satisfaction for the surgeon in having all cases worked up as was case 4. Is it better to have cases 1, 2 and 3 re-enacted every month or every year because we as surgeons continue to follow our own personal clinical senses entirely? Is it better to have patients die "under the knife" or "on the table" in order to save a few extra days hospitalization or because of the added expense of the laboratory procedures?

Without these precautions we must admit our patient has not had every safeguard and to follow these simple steps will preclude the possibility of considerable disappointment and embarrassment.

The scope of this paper does not permit a study of other factors, perhaps equally important, in eliminating the hazards of gall-

bladder surgery. My purpose was merely to emphasize the cardiac hazards of gall-bladder surgery and to point out the fact that "no surgeon, no matter how skillful or proficient he may be, should ever consider himself beyond the possibility of error or accident. While it is human to err it is inhuman not to try, if possible, to protect those who entrust their lives into our hands from avoidable failures and dangers."

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BIBLIOGRAPHY

1. Thorek, Max: Surgical Errors and Safeguards, Preface, Philadelphia, J. B. Lippincott Co., 1932.
2. Deaver, J. B.: Causes of Morbidity and Mortality of Operation for Gallstone Disease, Surg. Gynec. & Obst. 49:308 (September) 1929.
3. Deaver, J. B.: Role of Liver and Gall Bladder in Mortality and Morbidity of Gall Bladder Disease, Am. J. Surg. 7:463 (October) 1929.
4. Stanton, E. McC.: Immediate Causes of Death Following Operations on Gall Bladder and Ducts, Am. J. Surg. 8:1026 (May) 1930.
5. MacKenzie, Sir James: Diseases of the Heart, London, Oxford U. Press, 4th ed. 1925.
6. Osler, Sir Wm.: Principles and Practice of Surgery, New York City, D. Appleton Co., 1930, 11th ed.
7. Rolleston, Sir Humphry: Dyspeptic and Other Referred Symptoms Associated with Disease of the Gall Bladder and of the Appendix, Brit. M. J. 1:317 (March) 1920.
8. Robey, William H.: The Differentiation Between Gall Bladder Disease and Coronary Sclerosis in the Middle Aged, M. Clin. North Amer. 8:1709 (May) 1925.
9. Kaltetey, Frederick J.: Medical Conditions Simulating Surgical Conditions of the Upper Abdomen, Penn. M. J. 35:373 (March) 1932.
10. Bishop, Louis J.: Pain Below the Diaphragm of Cardiac Origin and Its Diagnosis Without Exploratory Operation, M. J. & Rec. 135:556 (June) 1932.
11. Horine, E. F., and Weiss, M. M.: Abdominal Symptoms in Manifest Heart Disease, South. M. J. 25:692 (July) 1932.
12. Lian, et al.: Angina Pectoris in Cholelithiasis, Presse Med., Paris 32:945 (November) 1924; Abstract J. A. M. A. 84:141 (January) 1925.
13. Cabot, Richard C.: Case Records of the Mass. General Hospital, Case 17512, New England J. M. 25:1204 (December) 1931.
14. Willis, Frederick A., and Fitzpatrick, Julia M.: The Relationship of Chronic Infection of the Gall Bladder to Disease of the Cardio-vascular System, J. Iowa M. Soc. 15:589 (November) 1925.
15. Lian, C.: The Heart with Gall Bladder Disease, Med. Paris 6:423 (March) 1925; Abstract J. A. M. A. 84:1532 (May) 1925.
16. Welchman, W., and Heimann, H. L.: A Case of Cholecystitis With Serious Cardiac Mischief, M. J. South Africa 20:59 (October) 1924.
17. Welch, J. Stanley: Some Causes of Death in Operations on the Gall Bladder and Bile Tracts; Post Mortem reports, Nebraska M. J. 11:8 (January) 1926.
18. Bessesen, Alfred N., and Bessesen, Daniel H.: Cholecystitis With Cardiac Disease, Nebraska M. J. 13:71 (February) 1928.
19. Roberts, Stewart A.: The Diagnostic Relations Between the Gall Bladder and the Heart, Illinois M. J. 56:317 (November) 1929.
20. Graham, Cole, Copher and Moore: Disease of Gall Bladder and Bile Ducts, Philadelphia, Lea & Febiger, 1928, p. 323.
21. Leech, C. B.: Association of Gall Bladder Disease and Heart Disease, New England J. M. 200:1318 (June) 1929.
22. Katz, E.: Left Thoracic Pain Simulating Angina Pectoris Due to Gallstones, J. Rec. 139:130 (February) 1934.
23. Brockbank, E. M.: The Frequency of the Occurrence of Gall Stones in the Patients of a General Hospital, and Especially in the Subjects of Mitral Stenosis, Edinburgh M. J. 4:51, 1898.
24. Nelson Loose Leaf Medicine, Thos. Nelson, 5:505, 1920.
25. Sussman, A. A., and Wilkerson, J. B.: Heart and Cholelithiasis, West Virginia M. J. 22:578 (November) 1926.
26. Miller, C. H.: Gall Bladder and Cardiac Pain, Lancet, 1:767 (April) 1932.

UNDULANT FEVER FROM GOAT MILK INFECTION

REPORT OF CASE

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Undulant or Malta fever in the United States is becoming constantly more prevalent and in the last few years there has been a widespread interest in its symptomatology and treatment. The following case I have outlined specifically and its source undoubtedly has been found to be in goat's milk.

CASE REPORT

On November 25, 1933, Mr. G. states he had lunch with his brother and never having had goat's milk, he drank a glass of it to see what it was like. This was the probable cause of a severe attack of Malta fever which started two weeks later. He thought at first he was coming down with a typical attack of influenza. Chilly sensations ran up and down his back; he ached all over and ran a fever of 99.6 to 101 degrees. He complained of some nausea, had headache, a very poor appetite and was constipated. There was some pain in his abdomen but not severe. He had a red throat and a little dry hacking cough. All his symptoms increased in severity and the third week of this illness he was quite sick. At this time all the laboratory tests were made to aid in diagnosis. Widal was negative; malaria was negative and the white count showed a leukopenia. At this time the spleen was palpable, one inch below the rib margin, and its edges were smooth and regular.

An agglutination test was made for Malta fever and immediately, in less than one half a minute, a very positive reaction occurred. At this time he had quite severe sweating attacks at night necessitating the changing of his gown and bed clothes many times. (These attacks were as often as two or three times a night.)

Up to this time he had been treated symptomatically but now a specific bacterin treatment was decided upon. The first dose was given December 27, 1933 and $\frac{1}{2}$ of a cc. was administered intramuscularly. He had no reaction so $\frac{1}{2}$ cc. was given the next day. Two days later, 1 cc. was given with a very marked reaction which came on in three hours after the injection. There was a very decided chill, fever of 103, and all his symptoms were increased. For the next three days after this reaction he seemed greatly benefited with a subsidence of all symptoms. On the fourth day he became worse and another 1 cc. was given with only moderate reaction. On each dose of the bacterin all his symptoms increased but were gone or nearly so the following day. Five days after this he was given $\frac{1}{2}$ cc. and this was repeated at an interval of a week. After this his symptoms left him. He lost considerable weight during his illness, 15 to 20 pounds. Two weeks after the last dose he had a slight recurrence and $\frac{1}{2}$ cc. of bacterin was given. This seemed to be the end of his illness.

The chilliness, nausea, headache, sore throat and general weakness with moderate

I am indebted to Dr. E. L. Stewart for the laboratory work in this case which was most efficient.

fever, leukopenia, loss of weight and enlarged spleen were the outstanding signs and symptoms of his condition.

CONCLUSION

I believe the rational treatment for undulant fever is the administration of Malta bacterin. It acted as a specific in this case. While it was not proved that the goat's milk was the causative agent, everything would point to it in this case. In this country the infection is found to come from cow's milk more often than from goat's milk.

This case continued about three months but the serum treatment undoubtedly shortened the time very greatly.

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THE COOPERATIVE STATE TUBERCULOSIS CONTROL PROGRAM

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INTRODUCTION

The subject as read was assigned to your speaker and it is his desire to affirm that the control of tuberculosis is the most important public health problem in Missouri today. And considering the work and attitude of the State Board of Health and the interest and cooperative spirit manifest by the several state-wide health agencies the time is not only urgent but opportune for entering upon such a program.

By way of introduction permit me to philosophize briefly and to make some comparisons. Philosophers have revealed truths and at times have substantiated or brought out facts of vital importance to mankind. Productive studies in physics and chemistry have followed hypotheses which now form the basis for the theory of evolution.

Pasteur, whom Osler terms the greatest of scientists, worked almost alone for 30 years to prove facts in bacteriology and fermentation and to discredit the long held theory of spontaneous generation. And during such years many of his colleagues and the contemporary scientists of Europe and Great Britain looked with incredulity upon his researches, though not investigating with care the results which he had verified with every known principle of trial and error.

Fifty years ago two great facts in medicine were presented to the scientific and

lay worlds; namely, the specific bacterial cause of tuberculosis by Koch, and the therapeutic truth that "rest" is the basis of treatment for this chronic disease.

The specific cause of tuberculosis is the tubercle bacillus. Knowledge of its production of the tubercle, the determining factor in the localization, pathology and symptomatology of tuberculosis, with the means for its early diagnosis, have been in our possession for half a century. Its transmission by contact and only by contact clinically has been of scientific and practical knowledge for years; in fact one is justified from the experience and opinion of the ancients to say for thousands of years. So the treatment by rest, introduced in America by Trudeau, is the sovereign remedy in pulmonary tuberculosis. But yet how few state governments are impressed by such facts? How few physicians apply them and how rarely do the members of society make use of them?

THE BEGINNING OF TUBERCULOSIS CONTROL IN AMERICA

It was practically 40 years ago that the great movement for the prevention and control of tuberculosis in America was initiated. With justice it can be said that the late Dr. Herman Biggs of New York City was the leader of the movement. Through his scientific exactness, almost sleepless persistence, and an exceptional ability to cooperate with other men and to coordinate all related groups he was able to induce the New York Board of Health to approve and adopt his report on tuberculosis control for New York City.¹ And with him were Dr. Jos. D. Bryant, Health Commissioner; Dr. Mitchell Prudden, pathologist, and Dr. Wm. H. Park, still active in public health work in New York. And Biggs also worked with state and city officials, with the medical profession and the public, correlating all the common forces in this fight against this widespread social disease.

The Biggs' report contained the following requirements for the control of each diagnosed case of tuberculosis, and at a time when they had not the confirmatory diagnostic aids which we possess: (1) A sputum examination; (2) reporting and registration; (3) official supervision and isolation of each case; (4) terminal disinfection; (5) provision of hospital facilities; (6) instructions to the public in the care of the tuberculous patient.²

In Philadelphia on Jan. 12, 1894, the College of Physicians, under the chairmanship

¹ Presented, on invitation, in St. Louis before the annual joint meeting of The Missouri Tuberculosis Association and The Missouri Public Health Association on Sept. 23, 1934.

of S. Weir Mitchell, held a joint meeting on tuberculosis, with Dr. Biggs and his associates from New York, and Wm. Osler from Baltimore, as guests. Among the Philadelphia members and participants were Drs. L. T. Flick, J. M. Da Costa, Owen Wister and Alexander C. Abbott.

As Winslow states,³ Flick and Abbott led the aggressive fight in the conservative city of Philadelphia for the strict control of this microbic and transmissible disease. Da Costa, however, minimized its contagiousness and Wister opposed its notification. On motion the College refused to support a memorial to the Municipal Board of Health "to register consumptives and to treat them as contagious."

The verbal fight between Da Costa, the highly intellectual and cultured gentleman of an older and somewhat traditional school of medicine, and the younger, progressive and truth searching Alexander Abbott, brother-in-law of Osler and head of the department of bacteriology at Pennsylvania, was both interesting and suggestive.

Such in the winter of 1894 was the beginning of tuberculosis control in America. Herman Biggs later became health commissioner of the State of New York, and left a legacy in an organized efficient and growing department of health comprehending a division of tuberculosis. Philadelphia and Pennsylvania soon followed as shown in their present day leadership and crusade against tuberculosis.

MISSOURI'S POSITION IN TUBERCULOSIS CONTROL

But what of Missouri? Legally as a state we stand in reference to tuberculosis control practically where New York and Pennsylvania stood 40 years ago.

We are gathered here not to discuss the etiology, diagnosis and treatment of tuberculosis, or the possible future immunity and tubercularization of the human race. We are here after several years of joint conference and cooperative study, for the purpose of freely discussing, for early action by the state, the practical and most ideal methods of present control and prevention of this as yet unconquered but acknowledgedly preventable disease.

The Federal government has taken legal action upon and prevents the entrance into its ports of bubonic plague, cholera and yellow fever. Federal officers and municipal medical inspectors join hands in all our ocean ports to accomplish this. And such diseases do not enter America.

With the scientific knowledge possessed

of tuberculosis, and the easily estimated expense and waste in its limiting morbidity and mortality it is a reflection upon organized government and society that it is not under better control. And Missouri shares in this responsibility.

It is generally acknowledged whatever the forms of government that nation and state have first responsibility in the welfare of their citizens. Such is one of the speaker's premises in this paper. Bearing upon Missouri's present part in tuberculosis legislation and control, I wish to present from our Health Commissioner, Dr. E. T. McGaugh,⁴ the following statements: "(1) There is no special legislation bearing upon the control of tuberculosis, in Missouri, save for the creation of a State Sanatorium; (2) there is no division of tuberculosis control under the State Board of Health. Such tuberculosis control work as we are able to do consists largely of communicable disease control, and such activities as can be carried on by county health officers and nurses."

The above statements comprehend practically the legal and authorized part taken by the State of Missouri in the control of tuberculosis. And this in a state with two large metropolitan centers, widely diversified rural sections and a population of 3,675,172, 153,110 of such being foreign born, 228,168 colored, and equally divided as to sex.

In view of this large and varied population and the health problems involved I wish to present to you certain specific conditions and facts illustrating both the need of and opportunity for the state to enter at once upon a definite, authorized and cooperative campaign against tuberculosis.

STATE PUBLIC HEALTH AND EDUCATIONAL AGENCIES

First I will present for your consideration the several active agencies and associations having to do, directly or indirectly, with state-wide public health and tuberculosis. They are, however, not legally related, and with different personnel and methods are more or less competitive and duplicating. Their legal or planned cooperation are very much needed:

1. The Missouri State Board of Health, the authorized, administrative health department of our state government.
2. The Missouri State Tuberculosis Sanatorium, under the State Eleemosynary Board.
3. The Missouri State Tuberculosis Association.
4. The Missouri State Public Health Association.
5. The Missouri State Medical Association.
6. The Missouri State Board of Education.
7. The Missouri State University.

In the proposed tuberculosis control program these agencies are and will prove to be a great asset.

To demonstrate the prevalence of tuberculosis throughout Missouri and the need of an early and specific program for its control, permit a few statistics to be quoted from the reports of the national and state tuberculosis associations. In 1932 there were 25,000 cases of tuberculosis in Missouri and 2,622 deaths, a mortality of 71. In 1933 we are credited with 20,000 cases of tuberculosis and 2,209 deaths, a mortality of 60.2. Further, Missouri belongs to the Mississippi Valley Tuberculosis Conference of 12 states; such being Illinois, Indiana, Iowa, Kansas, Nebraska, Minnesota, Michigan, Wisconsin, North Dakota, Ohio, South Dakota and Missouri. Of these states for the year 1933, Minnesota had a mortality of 38.7; Wisconsin 40.7; Michigan 46.6; Illinois 53.3; and Missouri as stated 60.2. Thus our mortality was the highest of these 12 states and has been so for years.⁵

When it comes to the causative factors in these several states influencing morbidity and mortality a true estimate is difficult to make. But with character of population, topography, metropolitan centers and resources there is slight difference. However with the four other states named it is observed that for years most aggressive tuberculosis control work has been done.

In Minnesota, as stated by Dr. A. J. Chesley, executive officer of the state department of health, "The control of tuberculosis, under the law is a responsibility of state and local boards of health." They have a state board of control with jurisdiction over all state institutions, and the authority to direct the movements and to finance the care of the patient ill with tuberculosis. At the present time the Minnesota board of health and the board of control are making a joint appeal to the legislature for more funds for tuberculosis control.⁶

In Wisconsin the state board of health and the antituberculosis association are legally integrated, and with their well located sanatoria and county case-finding machinery are doing effective work.

In Michigan the state tuberculosis association is very active and the state board of health is aggressive in its control of the individual case of tuberculosis.

As to precedents of state boards of health sensing their responsibility and establishing "tuberculosis divisions" there are Massachusetts, Vermont, Virginia, Kentucky and especially New York State. The formal

organization of a tuberculosis division in the New York department of health was in 1916. Their official work, which we can well afford to study, is centered in four main activities. First it renders diagnostic clinic advice including roentgen ray in all communities where there is no similar service. Second, it collects, organizes and interprets reports of cases and deaths. Third, it inspects sanatoria and clinics and does follow-up work. In addition it conducts Ray Brook, the state sanatorium, and is at present directing the construction of three new state sanatoria.

These facts are presented, not feeling that there is difference of opinion among the medical profession and public health officials of Missouri but rather to offer the precedent of action by other states and to urge need of action along similar lines, at this time in our own state.

Again, let us look into the administrative side of a state through its county system and how such system might and should assist in this problem of tuberculosis control. The state of Missouri is divided into 114 counties and the City of St. Louis. Each county has its county seat and easy form of administration to assist mechanically in any piece of social or public health work. Of interest to us is the fact that but 8 of these 114 counties have authorized and paid full time health officers. There are however several of the counties that have part time health officers who give a portion of their time to public health matters, including tuberculosis.

There are, in addition, but separate from the health units, 12 counties having paid nursing service, most essential and invaluable in "case finding" and the much needed follow-up work in tuberculosis.

It is in county health units and nursing service, common to and efficient in a few counties, where Missouri, in this problem of control, is especially lacking and weak. From a standpoint of population and special topography it would be quite possible and practical to join several counties into districts, thus lessening the number of necessary health and nursing units. But the fact is that the State Board of Health should authorize, and with other state agencies provide health units and nursing service for every county or district in the whole state, to adequately meet this tuberculosis problem.

OUR SANATORIUM SYSTEM

Realizing to a degree that Missouri had with other states a public health problem in its increasing number of cases of tuber-

culosis and that home care was impractical, the legislature in the 43d assembly made possible the establishment of a sanatorium at Mount Vernon, for the so-called incipient or early cases of pulmonary tuberculosis. The first cottage of such institution, the Gupton, was opened for patients in the spring of 1907. The state tuberculosis sanatorium, a strictly medical and therapeutic institution, is not under the direction of the State Board of Health but under the administration of the State Eleemosynary Board, which has for its common jurisdiction the four state hospitals, the school for the feeble-minded at Marshall, and the blind.

This Sanatorium is one of a recognized system of hospitalization and isolation for Missouri's cases of pulmonary tuberculosis. Such system comprehends 10 other sanatoria: 5 public, 3 private, and 2 institutional. The State Sanatorium has 360 beds, and always a waiting list. Koch Hospital in St. Louis is the largest with 500 beds. St. Louis City, St. Louis County, and Kansas City have their respective and well equipped sanatoria. Greene and Jasper counties have voted funds and have small but serviceable institutions.

With the types and qualifications of the superintendents and the medical and nursing staffs of these sanatoria, remarkably good work is being done. But certain of their needs should be emphasized.

On a minimal estimate of two beds to each death, there being 2209 deaths from tuberculosis reported in Missouri for 1933, there is a large deficit. There are in the 11 sanatoria mentioned, 1660 beds. To meet the estimated need of properly hospitalizing our tuberculous, Missouri should have 4418 beds.

In addition the location and accessibility of the sanatoria are matters of great importance. Many sections of the state with much tuberculosis are far removed from the sanatoria. A trip of 200 or 300 miles often ends in an added mortality, as observed not infrequently at Mount Vernon. Wisconsin, besides its state's sanatorium in the southern part of the state, has 18 other sanatoria widely distributed according to its local needs. In Missouri, its larger cities and the south central part of the state are well provided, but the southeastern, or Cape Girardeau section, the southern, northern, and northeastern sections are not well provided for. Such bears upon rest and hospitalization the most important factors in the treatment of the active case of tuberculosis.

Further, a gross fact which shows why the morbidity and mortality from tuberculosis

drop so slowly in Missouri is seen in the "advanced" condition of patients admitted to these sanatoria. The admissions at our State Sanatorium can be given as an example.

During the biennium of 1929-1930, out of 934 adult admissions 18 per cent were moderately advanced and 62 per cent far advanced; that is, 80 per cent were advanced, the majority open cases. In 1931-1932, 17 per cent were moderately advanced and 65 per cent far advanced; that is, 82 per cent were advanced. In 1933, 28 per cent of the cases being treated were moderately advanced and 61 per cent far advanced; thus 89 per cent were advanced. In the first six months of this year, 1934, 70 per cent have proved to be far advanced, 20 per cent moderately advanced, or 90 per cent truly advanced cases. Such figures demonstrate a progressive increase or rise in the stage of the disease possessed by the adult cases of pulmonary tuberculosis now entering our sanatoria. And such fact shows how the problem before us is augmented.

Knowing of the transmissibility of the advanced and open case, a few concrete examples will help to impress us with this phase and gravity of the problem.

On the 21st of March a 32 year old school teacher, scheduled to return to her public school in Iowa where she had been teaching for two years came to the Sanatorium for an examination and opinion because of a productive cough and loss of weight. Two years ago with cough and loss of weight she was given the medical opinion that she was not tuberculous. She now is far advanced with cavitation.

A mother 42 years of age entered Mount Vernon from Stone County, six months ago. She is far advanced, the mother of twelve children, from 2 to 21 years of age, all infected, five with active and demonstrable lesions. The husband is living, moderately advanced, of a fibroid type.

A 21 year old lad comes to us far advanced after two years of study at the University of Missouri. Previous to his admission at the Sanatorium he spent two months at home. Three brothers, as bed companions during the day, acquired the infection and later came to the children's cottage, two with hilar disease and the other with an active though retrogressive parenchymal involvement.

An 18 year old girl, far advanced, comes for a diagnosis. She lives fifteen miles away in an adjoining county. Her father and a brother died of tuberculosis the year before,

and on investigation five children in the home, from 4 to 11 years of age, are found massively infected.

A mother, far advanced, died in Koch Hospital, St. Louis, last year. Her six children from 4 to 15 years of age, all infected from the common, unisolated source, were for two years in the children's department at Mount Vernon.

A husband, a traveling salesman, not losing a day with his customers, during the last two years, visits recently, on a Sunday, his wife, a patient at Mount Vernon. He is the father of two young children. He has had a productive cough for five months. His wife prevailed upon him to have an examination. He has bilateral disease; is far advanced with cavitation, and of course a positive sputum.

Such histories are common and are being repeated daily. If an intensive, periodic and state wide survey were made, hundreds of similar families would be found throughout both urban and rural districts of Missouri. In consequence prevention could be instituted at once, a most important part of control.

METHODS OF DETECTION OF INFECTION AND DISEASE

Along with persisting prevalence of tuberculosis are the relatively easy and safe means of demonstrating its presence in the individual, both child and adult. To name three procedures is sufficient. They are the intracutaneous, tuberculin skin test, a roentgen ray of the chest, and a blood sedimentation.

For demonstrating the infection the tuberculin skin test is considered specific. In Missouri it is approved; its use is being extended and during the last two or three years has been introduced into many schools and clinics with the general approval of the local profession, the school authorities and the public, all of whom are interested in its more general use.

CASE FINDING

A recent piece of case finding through tuberculin testing in the schools of Lawrence County and a few bordering towns can be cited. A conference between the superintendent of the State Sanatorium and the officers of the schools and the interested parents brought a ready response. As a result each of 4,277 children were given an intracutaneous test with 1/10 mg. O. T. and observed in 48 hours. Out of this number 3,089 were tested in Lawrence County, 552

of them reacting positively; that is 17.8 per cent. In the adjoining towns, outside of Lawrence County, 1,188 were tested, 163 reacting positively or 13.6 per cent. The average reactors of this whole group of 4,277 was 15.7 per cent. Out of the 715 reactors 549 came, on appointment, to the Sanatorium for a roentgen film and sedimentation reading. Our interpretation of the films with the sedimentation rates yielded the following classifications:

| Childhood Tuberculosis | | | Total |
|------------------------|--------|--------|-----------|
| 1 | 2 | 3 | |
| Observational | Active | Healed | |
| 131 | 30 | 380 | 541 |
| Adult Tuberculosis | | | |
| Active | Healed | | |
| 3 | 5 | | 8 |
| | | | <hr/> 549 |

A point needing emphasis in this ready and specific means of detecting the infection of tubercle bacilli, outside of the few showing active disease, is that it is out of the young school group, 6 to 15 years of age, reacting positively to tuberculin, that later in life are to become the adult and advanced cases of pulmonary tuberculosis. Their early discovery may be the means to prevent by rational and practical control any further development of the disease. Further, it should be added that today many of these cases are breaking down in both school and industry in the age period between 18 and 25 when both mental and physical strain are very severe.

To detect the reactors among the young school children, and to safeguard the young men and young women from 18 to 25 years of age in school and industry is without any question the responsibility of the state. We, you and I, in official capacity and as citizens of Missouri are the state. It is up to us to establish in a legal and practical way this control.

As the years go on with the acknowledged high incidence of tuberculosis in Missouri it is realized that a major causative factor is in the lack of information and knowledge possessed by many members of the medical profession and the public at large upon the modern and specific methods of diagnosis and the simple but absolutely necessary means to prevent and arrest tuberculosis.

In the present decade however it can be said that several Missouri public health and educational agencies have arisen to the need and opportunity and an educational cam-

paign is being carried on. The State Medical Association, the medical faculty of the State University and the State Tuberculosis Association are offering postgraduate courses to county and district societies and holding regional tuberculosis conferences, so this need can be met. In St. Louis, the municipal board of health has established a course of lectures upon tuberculosis, its recognition and care, for both the white and colored professions. Such is mentioned both to give credit to the agencies sharing this work and with the hope that it may be extended.

FINANCING TUBERCULOSIS CONTROL WORK

It is acknowledged by your speaker and recognized by all interested in public health work that the financing of any new development is of first consideration. And such fact, in the present situation, is not overlooked. It should of course be referred to the proper board or committee which would have much to encourage it.

There are to begin with, legislative appropriations to conduct the State Department of Health with its responsibility over communicable disease, including tuberculosis. The Federal government has its official representative in public health service, in each state cooperating with the state. In addition the opinion has recently been given that the present administration at Washington contemplates coming in to each state to aid in financing preventive disease work.

Further, the very important part taken by the State Tuberculosis Association in raising funds through the Christmas seal sale should be acknowledged. It is quite probable that as in Wisconsin the financing of all the case finding and follow-up work in tuberculosis could be done by this organization in an intensive "Christmas seal" campaign throughout the state.

The various counties in Missouri legally privileged to vote funds for health and nursing units must be systematically informed and urged to do so for their own protection and welfare. Considering the present great expense attendant upon the care and treatment of the tuberculous in the state and the loss of income to and the suffering of those ill with the disease, surely a one half to one and one half mill tax could well be borne by each county in prevention and control of tuberculosis.

It should here be noted that the constructive work, initiated by the State Tuberculosis Association some two years ago, in

which our tuberculosis problem was given special attention and publicity, is bearing fruit. A committee named by its president from the State Board of Health, the State Eleemosynary Board, the State Medical Association, the State University and the State Tuberculosis Association, has approved the recommendation for a "tuberculosis division" in the State Department of Health. Such interest and evident activity on the part of this committee should be commended and will of course receive the courteous consideration it deserves.

Other and important phases of the tuberculosis problem could be presented and a very specific program could be offered, but there is neither the time nor the need. It is acknowledged that the responsibility and authority for the control of tuberculosis is with the State Board of Health. There has been portrayed before this joint meeting a list of the various state agencies doing both public health and tuberculosis work, which have voted their willingness and desire to cooperate with the State Board of Health and to be perfectly coordinated for efficiency in tuberculosis control. Such avowal is sincere and I am sure will be taken advantage of.

In conclusion, permit me to offer to this joint meeting, and to the State Board of Health through Dr. E. T. McGaugh, State Health Commissioner, the following recommendations:

1. The creation of a division of tuberculosis under a director, in the State Department of Health.
2. The reporting and registering by law of all diagnosed cases of tuberculosis and the circularizing of the medical profession throughout the state of such law.
3. The practical isolation of all open cases of tuberculosis.
4. Annual case finding through diagnostic studies of population groups, as school children, teachers, college students and industrial employes, making use of the medical profession and all educational resources.
5. A periodic follow-up and after care system for the discharged, improved and formerly infectious cases of tuberculosis.
6. Increased sanatorium beds and hospital facilities, more generally distributed throughout the state; if possible a 100 bed sanatorium at the University of Missouri for research and care.
7. A state wide educational campaign for the general medical profession and the public at large.
8. A state tuberculosis council appointed from the several public health and educational agencies named, to act in an advisory capacity to the State Board of Health (as does the Health Council in New York State).
9. The securing from the State legislature the right and authority, if not now possessed, to carry out these recommendations.

10. The securing from the State legislature an appropriation sufficient to meet the financing of these several recommendations, so far as funds are not available, or to be secured by contributions of the other said agencies.

BIBLIOGRAPHY

- 1, 2, 3. Winslow, C. E. A.: *The Life of Dr. Herman M. Biggs*, Philadelphia, Lea & Febiger, 1929.
4. McGaugh, E. T.: *Personal Communication*, 1934.
5. Whitney, Miss Jessamine: *Statistics*, National Tuberculosis Association, New York City, 1934.
6. Chesley, A. J.: *Personal Communication*, 1934.
7. *The Tuberculosis Program in New York State*, 1932.
8. *Report*, Missouri State Tuberculosis Association, 1934.

CASE OF PATRICIA MAGUIRE

Eugene F. Traut, Oak Park, Ill. (*Journal A. M. A.*, April 6, 1935), reports the case of Patricia Maguire, aged 26, who within a period of three weeks (previously healthy) developed stupor accompanied by fever, leukocytosis and bacteremia. The spinal fluid was clear but showed pleocytosis, increased globulin and an abnormal colloidal gold curve. The febrile stage and the deep stupor lasted three weeks. Various chemicals, vaccines, serums and hyperpyrexia were used. They are not known to have altered the course of the illness. Excepting occasionally scopolamine for sleep, she has had no medication since Feb. 28, 1934. She was given more than 1,000 feedings by nasal catheter without developing aspiration complications. The patient is very well nourished and has good color. Her muscles are large and strong. She has not spoken or made any purposeful movements except those of defense. She lies inattentive with shut eyes most of the time. The pupils do not react to light or in accommodation. The left great toe is constantly and rigidly hyperextended. She is fed by spoon or a catheter in the mouth.

REPAIR OF BLADDER FISTULAS: CLOSURE IN SEVENTEEN CONSECUTIVE CASES

Edgar F. Schmitz, St. Louis (*Journal A. M. A.*, April 6, 1935), discusses seventeen consecutive cases of bladder fistula successfully closed, together with a discussion of their causative factors, types of injuries sustained and the principles of operative procedure employed. One of the greatest causes of failure in fistula operations must be attributed to a lack of understanding of the problems involved by the person who first attempts to close the opening. The time to close a fistula is at the first sitting. Thirteen of the seventeen fistulas were closed by one operation and two operations each were needed in the other four cases to seal the opening. The services of a competent urologist are indispensable in this type of work, for not only must the location of the opening in the bladder be accurately located by cystoscopic examination but its relation to the ureters and the patency of these structures should be ascertained. Having located the opening externally and internally and having carefully planned the procedure, one is now in a position to operate. In all the author's cases with one exception, closure was done from below. The vaginal route for those accustomed to gynecologic procedure is the safest mode of approach, for it not only enables one to free the vaginal scar completely but also permits of wide dissection. The secret of success in the closure of vesical fistulas is undoubtedly dependent on many factors, but the first is not to freshen the edges of the defect. By saving all tissue, if a failure should result, the opening will not be any bigger than the original defect and the patient will be no worse off

in that respect than before operation. The author's second point is a plea for free and wide dissection of all possible surrounding tissue, as no suture will hold in soft tissue under tension. There must be sufficient bladder wall available not only to allow a closure of the opening but also to permit the placing of one or two rows of supporting sutures. Only by carrying out a well planned and systematic dissection can one mobilize sufficient vesical wall to close the larger or more inaccessible bladder fistulas. In placing sutures, a pucker should never be caused and a nonabsorbable suture should never be used in the bladder. All dead spaces should be obliterated. One must suture the deeper to the more superficial structures or pockets will develop which may undo the best operative procedure.

FEVER THERAPY

Philip S. Hench, Charles H. Slocumb and Walter C. Popp, Rochester, Minn. (*Journal A. M. A.*, May 18, 1935), state that fever must serve some very useful purpose, or nature would not have retained it so tenaciously as a reaction process to invasion of harmful substances, was the conclusion of Welch and others who, in the past forty years, have fostered a return of the hippocratic idea of fever's beneficence. The current development of fever therapy is a testimonial to the wide acceptance of their views. Under certain conditions, and within certain limits, hyperthermia is a state not to be prevented but to be fostered. Various methods for its more or less safe production are being increasingly elaborated. The day of pyretotherapy, of "friendly fever," is already well advanced. The authors' survey of experiences with fever therapy for various types of arthritis indicates that results have been quite variable. No one method has been proved clearly superior to all others, and a laudable process of simplification of methods is in progress. Of cases of chronic, nonspecific infectious (atrophic) arthritis, "cures" have been reported in from 0 to 25 per cent, marked relief in from 0 to 7 per cent, moderate relief in from 25 to 50 per cent, and no relief in from 13 to 75 per cent. They have estimated that, of the total number of patients treated, an average of about 10 per cent were reported as becoming symptom free, about 25 per cent reputedly obtained marked relief, about 35 per cent obtained moderate relief and about 30 per cent obtained no relief. The results in their cases have not equaled these general averages but have approximated the more modest estimates. Of their sixty patients with chronic infectious arthritis none were completely relieved, 18 per cent were markedly relieved, 12 per cent were moderately relieved, 20 per cent were but slightly benefited and 50 per cent were not relieved. Thus a total of 30 per cent received significant benefit and 70 per cent got little or no relief. The value of fever therapy for chronic infectious arthritis cannot yet be fully appraised. Further clinical experience is necessary as well as further investigation on the thermal death time of supposedly etiologic bacteria. In the meantime, a trial of fever therapy in selected cases is justified. Of cases of gonorrheal arthritis, "cures" have been reported in from 50 to 100 per cent, with complete relief occurring in a total average of 92 per cent. Only occasional patients are not markedly benefited. Since one may expect from adequate fever therapy a fairly rapid and essentially complete recovery in the majority of cases of acute gonorrheal arthritis (without the articular residues that so frequently occur in spite of other measures), and since even in cases of chronic, but still active, gonorrheal arthritis considerable benefit can often be obtained, the prompt use of this form of therapy is recommended.

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JUNE, 1935

EDITORIALS

THE EXCELSIOR SPRINGS SESSION

The Excelsior Springs Session, the Seventy-eighth Annual Meeting of the Missouri State Medical Association, was eminently valuable and enjoyable. An unusually good program, a large scientific exhibit, convenient arrangement, interesting commercial exhibits and diligent and efficient work by the local committee on arrangements all contributed to an outstanding session. Over five hundred members registered at the meeting.

More time was devoted to the scientific program at this session than at previous meetings. This was accomplished by having the second meeting of the House of Delegates precede the scientific session on Wednesday morning and the second Council meeting convene at noon on Wednesday, thus giving the entire day to the reading and discussion of papers.

On Monday evening a special session on "Physical Therapy" was held with two valuable presentations.

Medical economics was discussed at the session on Tuesday evening, taking the place of the customary open session. Dr. R. G. Leland, Chicago, Director of the Bureau of Medical Economics of the American Medical Association, presented an address on the subject and was followed by discussions. FERA work in Missouri was discussed in the Secretary's report and the proportionate expenditure on medical care by counties was presented. This portion of the report is given on page 256 of this issue.

The Clay County Medical Society proved themselves delightful hosts at an entertainment for visiting members on Wednesday evening.

All sessions were held at the Elms Hotel with the exception of a clinical session which was held Thursday morning at the Veterans' Hospital.

The following officers were elected: President-Elect, Dr. R. A. Woolsey, St. Louis; Vice Presidents, Dr. John D. Hayward, Clayton, Dr. W. A. Braecklein, Higginsville, and Dr. E. C. Robichaux, Excelsior Springs; Secretary-Editor, Dr. E. J. Goodwin, St. Louis; Assistant Secretary and Business Manager, Mr. E. H. Bartelsmeyer, St. Louis; Treasurer, Dr. John R. Caulk, St. Louis.

Dr. E. Lee Miller, Kansas City, was installed as President at the Wednesday morning session of the House of Delegates. Dr. Miller appointed the following members to committees: Dr. W. T. Coughlin, St. Louis, Committee on Scientific Work; Dr. Rexford L. Diveley, Kansas City, Committee on Post-graduate Course; Dr. William A. Bloom, Fayette, Committee on Publication; Dr. Carl F. Vohs, St. Louis, Committee on Medical Economics; Dr. Emmett F. Hctor, Farmington, Committee on Mental Health; Dr. L. W. Dean, St. Louis, Committee on Medical Education and Hospitals. The following members were reappointed on committees: Dr. W. H. Breuer, St. James, Committee on Public Policy; Dr. M. L. Klinefelter, St. Louis, Committee on Defense; Dr. Dudley S. Conley, Columbia, Committee on Medical Education and Hospitals, and Dr. D. A. Robnett, Columbia, Committee on Cancer. These appointments were confirmed by the House of Delegates.

Three special committees were appointed, viz.: the Committee on Maternal Welfare composed of Dr. Ralph R. Wilson, Kansas City, Chairman; Dr. Buford G. Hamilton, Kansas City; Dr. Winston T. Stacy, St. Joseph; Dr. E. Lee Dorsett, St. Louis, and Dr. Joseph D. James, Springfield; a Committee to Study the Constitution and By-Laws, which will report at the 1936 Session, is composed of Dr. Frank G. Mays, Washington, Chairman; Dr. M. P. Overholser, Harrisonville; Dr. H. A. Lowe, Springfield; Dr. Carl R. Ferris, Kansas City, and Dr. C. H. Neilson, St. Louis, and a subsidiary Committee on Medical Economics as follows: Carl F. Vohs, Chairman, St. Louis; Archer O'Reilly, St. Louis; E. P. Heller, Kansas City; D. D. Stofer, Kansas City, and Joel W. Hardesty, Hannibal. Mr. E. H. Bartelsmeyer, Assistant Secretary, was appointed ex officio member of these three committees.

The Society of Medical Secretaries elected the following officers: President, Dr. Frank

G. Mays, Washington; Vice President, Dr. E. B. Robichaux, Excelsior Springs, and Secretary Dr. W. E. Koppenbrink, Higginsville.

The Association accepted the invitation of the Boone County Medical Society to meet at Columbia in 1936.

DIPHTHERIA IMMUNIZATION

In an attempt to carry out a program of immunization of all children between the ages of 6 months and 6 years and to make early immunization a routine practice by all physicians, the Missouri State Board of Health has taken an active part in the annual observance of Child Health Day. In 1924 May 1 was designated as Child Health Day by the American Child Health Association. In 1932 the May Day Committee of the Conference of State and Provincial Health Authorities of North America took over the responsibility of the annual observance of this day.

During the month of May the State Department of Health as well as city health departments emphasized diphtheria immunization and will continue the work throughout the year. The plan is to furnish toxoid for free immunization to indigent children under 2 years of age in communities of under 10,000 population. The work is to be done by local health officers and physicians. Cooperation has been asked of the Missouri State Medical Association and the Woman's Auxiliary, county medical societies, the Missouri Child Health Council, the Missouri Parent Teachers' Association, the American Legion, the Missouri Farm Women's Association, the Missouri Federated Clubs and other local and civic organizations.

The plan was endorsed by the Executive Committee of the Missouri State Medical Association and the action approved by the House of Delegates at the Excelsior Springs Session.

ST. LOUIS CLINICS

The St. Louis Clinics held its annual post-graduate course and clinical conference May 20 to May 25. About one hundred registrants were in attendance, medical reserve corps men of the Army, Navy and Marines taking advantage of the opportunity to attend as guests of the St. Louis Clinics.

Clinics were given at St. Lukes, Missouri Baptist, St. Johns, Jewish, St. Marys, Firmin Desloge, Barnes, De Paul and Isolation hos-

pitals. There were four evening meetings held at the St. Louis Medical Society building on Monday, Tuesday, Wednesday and Thursday. On Tuesday evening the St. Louis Clinics conducted the regular meeting of the St. Louis Medical Society with the Society members as guests at a smoker following. On Thursday evening a dinner was given by the Seventh Corps Area in honor of the registrants to which members of the St. Louis Medical Society were invited.

The general enthusiasm shown by those attending was such that the St. Louis Clinics will continue this type of conference in the future. It has been designed to give the practitioner an opportunity to acquaint himself with the newest developments in medical and surgical fields. The presentations were short but complete, in many instances an effort being made to develop the symposium idea.

The registrants were from Colorado, Kentucky, Michigan, Minnesota, Iowa, Alabama, Nebraska, Wisconsin, Illinois, Missouri, Kansas, Arkansas and South Dakota.

SOUTHERN MEDICAL ASSOCIATION

Missouri, and especially St. Louis, will be honored this fall when the Southern Medical Association convenes for its twenty-ninth annual meeting, November 19 to 22, 1935. The session will be held in the new Municipal Auditorium in St. Louis, the first medical convention to be held in the building. The St. Louis Medical Society will serve as hosts at the session.

The Southern Medical Association was organized in 1906 with a small but enthusiastic membership. Its membership now numbers in the thousands and is drawn from sixteen states of the South. Its purpose is "to advance the science of medicine and to develop the medical talent in the Southern states." The organization restricts its activities to scientific consideration of medical work and takes no part in economic, political or sectarian questions.

The arrangement of the program for the St. Louis session will be similar to that of preceding years. The meeting will open Tuesday morning, November 19, and continue through Friday noon, November 22.

Tuesday will be "St. Louis Day," all presentations on that day to be made by St. Louis members. Five clinical sessions will be conducted concurrently. On Wednesday morning five clinical sessions will be held, presented by men from other parts of the

United States. The sixteen sectional meetings will begin Wednesday noon and run in half-day sessions through Friday noon. The general session featuring the address of welcome, the president's address, the report of the council and the election of officers will be held on Wednesday evening. Alumni reunion dinners will be held on Thursday evening. Tentative plans include an open meeting on Tuesday evening.

All scientific sessions of the Southern Medical Association and organizations meeting concurrently and all commercial and scientific exhibits will be in the Municipal Auditorium. Meeting conjointly with the Southern Medical Association will be the Southern Branch of the American Public Health Association, the National Malaria Committee, the American Society of Tropical Medicine, the American Academy of Pediatrics (Region 2), and the Society for Experimental Biology and Medicine (Southern Section).

On April 23 the Missouri State Medical Association was host to officers and local chairmen of committees for the session at a luncheon meeting in St. Louis. On the evening of the same day the St. Louis Medical Society was host to this group. The officers of the Southern Medical Association who attended these meetings were Dr. H. Marshall Taylor, Jacksonville, Florida, president; Dr. Irvin Abell, Louisville, Kentucky, member of the board of trustees; Dr. M. Pinson Neal, Columbia, Missouri, member of the council, and Mr. C. P. Loranz, Birmingham, Alabama, secretary-manager.

Dr. Quitman U. Newell, St. Louis, is general chairman of the committee on arrangements. Dr. John R. Caulk and Dr. John C. Morfit, St. Louis, are vice chairmen, and Dr. G. V. Stryker, St. Louis, is secretary.

This is the first time the Southern Medical Association has convened in St. Louis which is the largest city within the territory from which the association draws its membership and is a recognized medical center. The association is expecting a successful meeting and the local committees are endeavoring to make it a valuable session. It is an opportunity for Missouri physicians not only to attend a thoroughly valuable meeting but to extend courtesy and hospitality to the members of the profession throughout the South. Many members of the Missouri State Medical Association are members of the Southern Medical Association but many more should be. Any member of a component county society is eligible and the

dues are \$4.00 a year which includes subscription to the *Southern Medical Journal*. Applications may be made either to the Southern Medical Association, Empire Building, Birmingham, Alabama, or to the Missouri State Medical Association, Missouri Building, St. Louis.

ATLANTIC CITY SESSION OF THE AMERICAN MEDICAL ASSOCIATION

The American Medical Association and the Canadian Medical Association for the first time will hold a joint session when the two organizations convene for their annual sessions at Atlantic City, June 10 to 14. This is the Eighty-sixth Annual Session of the American Medical Association and the Sixty-sixth Annual Session of the Canadian Medical Association. Members of both organizations will take part in one program and no division will be made of the two associations except for business sessions.

More than three hundred fifty individual contributions appear on the program for presentation at the general and sectional meetings. Every phase of modern scientific medicine will be dealt with by members of the two associations and a number of distinguished guests. Sessions on anesthesia, military medicine and history of medicine are special features of this session.

Atlantic City offers not only ideal conditions and arrangements for the scientific sessions but offers the ultimate in entertainment. The local society and its committees have planned diligently not only for a profitable meeting but an enjoyable one.

The House of Delegates will convene on Monday, June 10, at 10:00 a. m. The Scientific Assembly will open with a general meeting on Tuesday evening and the sections will meet on Wednesday, Thursday and Friday.

Among the entertainments are a dinner for delegates and officers of the two associations at the Traymore Hotel the evening of June 10; a luncheon for officers and members of the House of Delegates at the Ambassador Hotel on June 11; an entertainment and dance on the Steel Pier on June 12 and the President's reception on June 13.

Members from Missouri appearing on the scientific program and their subjects are Dr. David P. Barr, St. Louis, "Recent Advances in Knowledge of the Relationship of the Pituitary to Ovarian Hormones." Dr. Charles W. Greene, Columbia, "Response of Coronary Vessels to Various Organic Drugs." Dr. Albert Kuntz, St. Louis, "Es-

sential Anatomy." Dr. M. F. Engman, St. Louis, "Congenital Atrophy of the Skin with Reticular Pigmentation." Dr. Sherwood Moore, St. Louis, "A Clinical Syndrome with Radiographic Lesions in the Frontal Bone."

Discussions will be opened by Drs. D. A. Robnett, Columbia; Dr. John Green, St. Louis; Dr. Borden S. Veeder, St. Louis, and Dr. Frank D. Dickson, Kansas City.

NEWS NOTES

The American Association for the Study of Goiter will convene in Salt Lake City, Utah, June 24, 25 and 26.

Dr. David P. Barr, St. Louis, was elected vice president of the American College of Physicians at the annual session held in Philadelphia, April 29 to May 3.

Dr. Roland M. Klemme, St. Louis, participated in a round table discussion on "Frontal Lobe Lesions" at the annual session of the Harvey Cushing Society at New Haven, Connecticut, May 2 to 4.

The American Neisserian Medical Society will hold its first annual meeting on June 11 at the Claridge Hotel, Atlantic City. All physicians who are interested in this work are invited to attend.

Dr. C. W. Dowden, Louisville, Kentucky, was the guest of honor at a dinner given by Dr. J. Curtis Lyter, St. Louis, at the Glen Echo Country Club, St. Louis, April 17. Dr. Dowden delivered an address on "The Recognition of the Atypical Thyrotoxic State."

The St. Louis Society for the Blind in cooperation with the National Society for the Prevention of Blindness presented the Leslie Dana Medal, awarded each year for outstanding work in blindness prevention, to Dr. Wm. Hamlin Wilder, Chicago, at a dinner meeting in St. Louis, May 18.

Dr. George H. Thiele, Kansas City, will deliver an address at the thirty-sixth annual meeting of the American Proctologic Society which convenes in Atlantic City, June 10 and 11. Dr. Thiele's subject will be "The

Clinical Interpretation of Anorectal Pathology."

Dr. Willard Bartlett, Jr., and Dr. Ralph A. Kinsella, St. Louis, were guests of the Northern Tri-State Medical Meeting at Lima, Ohio, April 9. Dr. Bartlett spoke on "Lessons Derived From a Five-Year Mortality Study" and Dr. Kinsella presented an address on "Chronic Arthritis."

A site adjoining the St. Louis City Hospital has been selected for the new \$1,000,000 psychopathic hospital. Tentative plans are for a six story brick building occupying the most of an entire block with a 250 bed capacity. The new hospital will replace the City Hospital observation ward and provide an outpatient clinic.

Dr. Henry J. Ulrich, St. Louis, was appointed superintendent of the St. Louis Isolation Hospital on May 15 to succeed Dr. John Eschenbrenner who resigned May 1 to enter private practice in Ardmore, Oklahoma. Dr. Ulrich has been resident physician at the hospital since 1929 and has acted as superintendent since Dr. Eschenbrenner's departure.

Two additional events have been added to the golf schedule at the American Medical Association meeting. Golf enthusiasts of the Canadian Medical Association and members of the American Medical Golfing Association will vie on June 10 in the International Event. The Canadian Event will feature the Ontario Cup and other prizes of the Canadian Medical Association.

The Washington University Medical Alumni held a clinical conference on May 24 and 25 at the Barnes Hospital, St. Louis. Clinics and addresses were presented throughout both days. Operations were performed both mornings simultaneously with the other program and on the second day an otolaryngological program was presented for men in that specialty.

A man using the name of Garrison called upon the St. Louis Medical Library May 15 to borrow money. He introduced himself as a brother of the late Dr. Fielding H. Garrison of the Welch Medical Library. He told of an automobile accident in Jefferson

City which had taken all his cash and wanted a small personal loan to enable him to reach home. He is described as being between 60 and 65 years of age, with thin light grey hair and eyes, tall and slender and neatly dressed in a reddish brown suit. Several teeth are missing from his right lower jaw leaving a conspicuous discolored canine tooth. An account which is evidently of the same imposter using another name but using the same story appeared in the *Journal of the American Medical Association* April 13, 1935.

Dr. Emsley T. Johnson, Kansas City, and Dr. Willard Bartlett, St. Louis, were guests of the Nebraska State Medical Association at the annual session held in Omaha, May 14, 15 and 16. Dr. Johnson spoke on "Liver Damage Due to Synthetic Drugs: With Clinical Necropsy and Experimental Studies." Dr. Bartlett discussed "An Inventory of Surgical Consideration Which Is Fundamental to Further Progress in Our Art." Dr. Bartlett was the guest of the University of Michigan on May 2 and addressed the sophomore class in medicine.

The Mississippi Valley Medical Society was formally organized at Quincy, Illinois, on April 8 with its purpose to be the holding of an annual meeting each fall devoted to intensive postgraduate instruction conducted by leading clinical teachers of the United States. The society will be especially for physicians of Illinois, Missouri and Iowa and the annual meetings will be held in cities on the Mississippi River in these states. The first meeting will be held in Quincy, October 2, 3 and 4, 1935.

The control of the organization is in the hands of a board of directors consisting of one director to each one thousand physicians in the states of Illinois, Missouri and Iowa. The officers elected to serve for 1935 are: President, Dr. Walter Stevenson, Quincy, Illinois; president elect, Dr. H. B. Goodrich, Hannibal, Missouri; first vice president, Dr. H. P. Coleman, Canton, Illinois; second vice president, Dr. E. A. Cunningham, Louisiana, Missouri; third vice president, Dr. William Rankin, Keokuk, Iowa, and secretary-treasurer, Dr. Harold Swanberg, Quincy, Illinois. Membership in the society will be open to all ethical physicians, the only prerequisite being membership in the respective state medical associations. During the first year the dues will be \$3.00 and life membership \$25.00.

OBITUARY



JABEZ NORTH JACKSON, M.D.

On March 26 the Jackson County Medical Society devoted its meeting to a tribute to the memory of Dr. Jabez N. Jackson. The address delivered by Dr. Charles C. Dennie and a liberal abstract of an obituary by Dr. M. A. Hanna follow. It is regrettable that space in *THE JOURNAL* does not permit the publishing of addresses delivered by Drs. Frank Teachenor, J. M. Frankenburg, Buford G. Hamilton, Frank Neff and Frank Dickson.

A resolution was adopted at this meeting petitioning the city officials of Kansas City to name the surgical pavilion, soon to be erected as part of the improvement of the Kansas City General Hospital, the "Jabez N. Jackson Memorial Pavilion."

TRIBUTE BY DR. CHARLES C. DENNIE

The name of Jabez North Jackson must be added to the roll of great Americans. The sturdiness of his character and the magnitude of his accomplishments inevitably placed him there. It is with much sadness that we contemplate the passing of a life so vigorous and one that has added so much happiness to many lives; but this sadness is tinged with pride that in living his influence upon the lives of all of us has been so great.

The life of a great physician is lived more fully than in any other walk of life. Almost instinctively he knows the thoughts of others and anticipates their wishes. Their innermost secrets that are slowly destroying them they yield up with the sure knowledge that none but he shall ever know them again; thereby they are greatly comforted. The sick know that in him they have a constant and untiring friend who will descend with them into the depths and drag them back from the brink of oblivion, and even when they pass into the unknown he is there to ease the pain of passing. There is no one that can take his place, for he is Priest, Father and Mother all inexplicably combined into one. Nor are all of his problems medical. His friends and patients come to him with problems that

do not even remotely approach this great field, for they recognize in him a supreme wisdom, a robust honesty, an innate justice and a kindly understanding that is as much a part of him as his medical skill or his scientific ability. No man is more universally loved. His administering hand touches the lives of the lowest and those of the highest station. He makes no differentiation between the two when his services are needed and he is equally loved by both.

Dr. Jackson was a typical American physician. The roots of his life grew deep in his native Missouri soil. From it he drew the strength that nourished a strong body and a vigorous mind. His father before him was a physician, in the grand old state, and represented that strong race of men, the true and original pioneer stock that is vanishing so rapidly from our country. Early in his life, before he ever attended the village school, Dr. Jackson had already determined to study medicine. There was the example of his father's life before him. His alert mind even at this tender age had already made him acutely aware of the untiring energy, precision and ever present kindness that was characteristic of his father's life and must always be a part of the great physician's life. He could not analyze the motives that made him wish to follow in his father's footsteps, but follow them he must and thereby paid to his father the greatest compliment that a son could possibly pay.

Determination was the keynote of his life, but it was not of that arrogant type that sweeps all before it for it was always directed by the spirit of fair play and the consideration of the rights of others, therefore, this determination was a strong force that not only carried its possessor to greater fields but so influenced the lives of others that they too reached their desired goal.

He was always the friend of the young physician. Any skill that he possessed he passed on to them. His pride in them was great; they were his boys. It seemed to them that many times his criticism of them or their work was very sharp. If they mentioned the fact, he would say: "Damn you, if I didn't love you I would not cuss you; I would be extremely polite."

Dr. Jackson received all of the honors that American medicine could give him from president of the Jackson County to president of the American Medical Association. He was never a politician in the pure sense of the word for all of those honors came to him because of merit. His great work in surgery gained him not only local and national prominence but made his name well known in every nation where brilliant and scientific attainments are known. I think that of all his honors, he took the greatest pride in being a member of the old aristocratic American Surgical Society; and well he might for only the greatest find their names upon that roll.

In spite of all the honors that were bestowed upon him, in spite of the assured position that he had secured in national and international medicine, he was a man of strong family traits. His wife and children loved him not because he was the eminent physician, naturally they took great pride in that, but because he was a kind and loving father. In him they felt security, they knew that he would protect them against all evil, their problems were his problems, they relied implicitly upon his judgment and frankness, his loyalty was unquestioned.

Never can they forget him nor can we.

No brush can paint the colors of the summer morn
Nor etch the falling shadows of departing day
Nor yet can catch the brilliance nor the form
Of that clear filtered sunlight that is born
To urge the weary stranger on his way.

And thus we needs must paint the soul of mortal man
In colors free. Bold strokes, that cross the canvas run,
Tell the story of his life. It demands
The sum of all his honors, sins remand
And strike the balance ere his life is done.

The finished canvas hung in its appointed place
Compels the gaze and mellowed by the march of years
Its beauty holds the eye of him whose face
Is ever turned toward truth. Naught can replace
A life full lived though mourned it be with many tears.

TRIBUTE BY DR. M. A. HANNA

The passing of Dr. Jabez N. Jackson, March 18, 1935, marks practically the end of a distinguished group of memorable Kansas City physicians who made a notable contribution to the development of surgery in the Middle West. One readily recalls the names of Crowell, Perkins, Block, Hall, Harrelson, Griffith, Hill and others that formed this brilliant constellation of magnetic personalities and pioneer surgeons.

It is oftentimes observed that the offspring of a long line of professional forebears has a head start in the race for a successful career. A review of Dr. Jackson's distinguished ancestry enables one easily to visualize him as a man of destiny and accomplishment. Dr. John Wesley Jackson, father of Dr. Jabez N. Jackson, was one of the early settlers in the State of Missouri. He served during the Civil War as a major in the Union Army. He organized and established a hospital for the Missouri Pacific Railroad and became the first railroad surgeon in the United States. He was the first president of the National Association of Railway Surgeons.

Dr. Jabez N. Jackson was a native son of Missouri. He was born in Labadie and was graduated from Central College at Fayette in 1889 with the degree of Bachelor of Arts. The following year he received a Master's degree from the same institution. He continued his study in consecutive years at the University Medical College and was graduated with the degree of Doctor of Medicine. After doing postgraduate work at the New York Polyclinic, he returned to Kansas City and was appointed demonstrator of anatomy at the University Medical College which position he held until 1898 when he was commissioned a major in the United States Army and saw service in the Spanish-American War. He was later made brigade surgeon and had charge of the second division hospital until the end of the war when he received an honorable discharge.

During the World War Dr. Jackson was a member of the Medical Board of the National Council of Defense. It was a matter of keen regret to him that his duties did not permit him to see overseas service. He maintained a continuous contact with army organizations and was at the time of his death a major in the Medical Reserve Corps of the United States Army.

Both his father and uncle were prominent Kansas City physicians. The name of Jackson stood high in the medical history of the city and Dr. Jackson need have had no difficulty in establishing himself but his office was not with theirs and wherever he went in the pursuit of his practice his relationship to the famous Drs. Jackson became known only after diligent questioning on the part of the patient.

Prominent among his accomplishments was his gift of oratory and his ability as a raconteur was a constant source of delight to his intimate friends.

Dr. Jackson made many contributions to scientific medicine and was internationally recognized as a teacher and a surgeon. Conspicuous among his developments are his work on Jackson's membrane, the retrocecal appendix, and surgery of the breast. He always took an active interest in civic betterment and

organized medicine. He was president of the Kansas City Academy of Medicine, the Missouri State Medical Association, the Western Surgical Association and the American Medical Association. Dr. Jackson was one of the founders of the Jackson County Medical Library and generously supported it when it was dependent upon individual donations.

Dr. Jackson's life was a big adventure which he generously converted into service. This enthusiastic devotion persisted through his life—even during his last few years, after he had felt the first rapier-like thrust of a disease that is subtle in its approach but definite in its objective—he accepted the important responsibility of Health Director of Kansas City and carried on the duties of that office with a fearless determination. He was a civic asset to Kansas City and a crusader for right and justice who never bowed his head to duplicity or exploitation.

EDWARD A. STIERBERGER, M.D.

Dr. E. A. Stierberger, Union, a graduate of the Marion-Sims College of Medicine, 1897, died at his home February 22, aged 59 years.

Dr. Stierberger was born in Union and obtained his early education there. After completing his medical education he located in Sioux City, Iowa, but remained there only a year, then returned to his boyhood home to practice. He shortly built up a large practice throughout the county.

It was a passion with him to help the sick in body or mind and no sacrifice was too great for him to make that would heal the sick or relieve their pains. For a quarter of a century he was the only physician in Union and the vicinity. In times of epidemics he at times prescribed to more than two hundred patients a day besides making his regular daily visits. Sometimes for weeks he would not go to bed but get what rest he could by sleeping in his buggy or automobile while his driver conveyed him to the homes of his patients.

Dr. Stierberger served the Franklin County Medical Society as president in 1925 and was vice president at the time of his death.

He is survived by his widow, Mrs. Amelia Stierberger, a son and a sister.

JOSEPH TAYLOR GRIEST, M.D.

Dr. Joseph Taylor Griest was born in Peoria, Illinois, on June 26, 1879, and died March 2, 1935, at his home in Richmond Heights.

Dr. Griest was doctor, chemist, pharmacist, short story writer, Bible student and a lover of art and music. He received his degree as pharmacist at the University of Pennsylvania. His degree as Doctor of Medicine was attained at Barnes College of Medicine in 1909. For eight years he was professor of chemistry and toxicology at the National University of Arts and Sciences. He enjoyed imparting knowledge and when the doors of the latter institution were permanently closed, it was one of the real disappointments of his life.

In February of 1930, he suffered a cerebral accident, which progressively incapacitated him. A year previous to this vascular accident he lost his wife, who had been a cardiac invalid for years. He delighted in relieving pain and distress, and in curing disease.

His patients respected his ability and had implicit faith in him. My close association with Dr. Griest gave me ample opportunity to become thoroughly acquainted.

In all his suffering and mental anguish he was brave and patient, showing the character of a Christian gentleman.

He gave much of his time, money and thought during his years of full activity to many, who, through no fault of their own, were unable to pay him for his professional attention. His sympathy was always with "the under dog." He deplored that "The wealth of the nation was in the hands of a few." To his invalid wife who preceded him in death he stretched every energy to relieve her of many of the problems in the home after his duties as a physician had been thoroughly and faithfully discharged.

God bless his soul, and may he rest in peace.—
L. A. M. in the St. Louis County Medical Society
Bulletin.

SAMUEL A. POAGUE, M.D.

Dr. S. A. Poague, Clinton, a graduate of Marion-Sims College of Medicine, 1892, died February 17 at his home, aged 70 years. He had been in ill health since an automobile accident a year previous.

Dr. Poague was born in Benton County, Missouri. After his preliminary education he attended the University of Missouri and then taught school at Rose-land and Lincoln, Missouri.

He began his practice in Clinton where he remained until his death. He was loved by all in his community. He was always active in civic projects and served two terms as mayor of Clinton. He was active in organized medicine and served the Henry County Medical Society as delegate to the Annual Sessions several years.

Dr. Poague was known as the kindly physician, ministering to the sick, alleviating the suffering of the afflicted, cheering the down-hearted and discouraged. The country lanes were never too muddy; the night was never too wet nor cold, the trip was never too long for him to respond to the call from the sick bed. He was generous in all things and was ever eager to answer the call of those in distress.

He is survived by a son, Henry Frederick Poague, and a daughter, the wife of Dr. James O. Smith, St. Louis.

JOHN H. SUTTER, M.D.

Dr. John H. Sutter, former president of the St. Louis County Medical Society and the second Health Commissioner of University City, died at the Deaconess Hospital, March 29, 1935, from cancer of the lungs. He was 63 years old and resided at 6500 Maple avenue, University City.

Dr. Sutter had been ill for the last four years and confined to his home during the last six months. He was taken to the hospital ten days previous to his death.

Dr. Sutter was the son of John Sutter, for whom Sutter avenue in St. Louis County was named. Born in St. Louis, he attended school in Ferguson and received his medical degree at the old Beaumont Medical College. He practiced in North St. Louis and University City for thirty-three years prior to his retirement about two years ago. He served as president of the St. Louis County Medical Society from 1931 to 1932.

In addition to his widow, Mrs. Mollie Sutter, five sons, J. Milford, Orville C., Leslie Mike, Norman J. and Dr. Richard A. Sutter, survive.

Dr. Sutter was a member of the Masonic Order.—
L. A. M. in the St. Louis County Medical Society
Bulletin.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1935

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Ste. Genevieve County Medical Society,
December 12, 1934.

Chariton County Medical Society, Janu-
ary 3, 1935.

Perry County Medical Society, January 4,
1935.

Moniteau County Medical Society, Janu-
ary 10, 1935.

Camden County Medical Society, Febru-
ary 26, 1935.

Schuyler County Medical Society, March
18, 1935.

Lewis County Medical Society, April 2,
1935.

Holt County Medical Society, April 18,
1935.

Pike County Medical Society, May 15,
1935.

Saline County Medical Society, May 21;
1935.

ADAIR COUNTY MEDICAL SOCIETY

The Adair County Medical Society met May 2 at the State Teachers College, Kirksville.

A letter from the Winthrop Chemical Company offering a motion picture on "Anesthesia" was read. On motion by Dr. R. O. Strickler, seconded by Dr. A. F. Miller, Kirksville, the offer was accepted for some future date.

An official letter from the Schuyler County Medical Society to the State Medical Association accepting the Adair County Medical Society's invitation to become a part of that Society was read. It was moved by Dr. J. S. Gashwiler, Novinger, that from now on the organization be known as the Adair-Schuyler County Medical Society. Seconded and carried.

Dr. G. E. Grim, Kirksville, moved that a letter be written to Dr. Ellis Fischel, Chairman of the Committee on Cancer, to hold a cancer clinic in Kirksville. Dr. S. L. Freeman, Kirksville, seconded the motion which carried. Dr. Strickler moved that the clinic be held June 8 if that date be available. The motion carried.

It was moved, seconded and carried that the Winthrop Chemical Company be thanked for their motion picture on "Malaria."

J. S. GASHWILER, M.D., Secretary.

BUCHANAN COUNTY MEDICAL SOCIETY

The Buchanan County Medical Society was called to order in the Missouri Methodist Hospital at 8:00 p. m. April 13 by Dr. E. F. Cook with forty-five present.

Dr. Riley Waller presented a case of ringworm of the little toe of the right foot in a child aged 20 months. This rather rare condition in a child so young was examined with a great deal of interest by the members of the Society.

Mr. Clifford Marker discussed a medical credit bureau.

Dr. H. DeLamater reported that an effort is being made to publish portions of scientific papers read before the Society in the local press. Dr. DeLamater also discussed a speakers' committee to provide speakers on subjects relative to health for organizations wanting them. He stressed the effort of the cults to get into the public schools as speakers, health chairmen in the P. T. A., etc. As a result of this discussion a motion was made that steps be taken to prevent the osteopaths and other cults from obtaining positions and places of importance in our public schools. Dr. J. M. Hughes moved an amendment to the motion that a list of members be made who will speak and that a list of subjects on health available from the A. M. A. be compiled by the publicity committee and that the P. T. A. and similar organizations be informed that such speakers and such information are available and can be had for the asking. The original motion as amended was adopted.

Dr. Riley Waller reported that Dr. A. C. Broders, Rochester, Minnesota, would be in St. Joseph in May and suggested that the Society give a luncheon for him and ask him to speak on whatever subject he choose. On motion the matter was referred to the program committee.

Dr. W. R. Moore reported on the meeting of the Clinical Society.

Following the reading of a letter which stated that the library committee had fulfilled the requirements of the will of the late Jacob Geiger concerning the Jacob Geiger Library, a motion was adopted that the Buchanan County Medical Society accept the Jacob Geiger Library and to so notify Mrs. Jacob Geiger.

The subject of payment of physicians for charity work both in the county and the city was discussed. Motions were made and seconded that the members of the Buchanan County Medical Society do not serve the patients of organized charities free of charge; that a special committee be appointed to investigate the situation and report at the next meeting, and that one of the regular committees handle the investigation. All were tabled.

Meeting of May 1

The Society was called to order by Dr. J. M. Allaman, vice president, with thirty present.

Drs. Orr Mullinax and Dr. Arthur Kelley, St. Joseph, were elected to provisional membership.

The applications for provisional memberships of Drs. Maxwell Day and Lieutenant E. C. Evers were read.

Dr. Jacob Kulowski presented a paper on "Congenital Anomalies and Deformities." His presentation was highly instructive and interesting and each case was demonstrated by numerous slides. The paper was discussed by Drs. H. E. Peterson, Charles Geiger, G. T. Bloomer and Riley Waller.

EARL WHITSELL, M.D., Secretary.

CAPE GIRARDEAU COUNTY MEDICAL SOCIETY

The annual banquet of the Cape Girardeau County Medical Society was held at the Colonial Tavern just outside of Cape Girardeau April 8. Dr. D. I. L. Seabaugh, Jackson, presided and ruled that no business was to be conducted.

Following the repast the president addressed the assembly briefly and invited his son, Dr. Rusby Seabaugh, Jackson, to introduce the speaker. With both levity and seriousness Dr. G. D. Royston, St. Louis, was

introduced and delivered an address which was voted among the most valuable ever presented to the Society, the subject being "Trauma of Labor." Lantern slides furnished most valuable illustrations to amplify the text.

Participants as members and guests were: Drs. G. D. Royston and J. E. Hobbs, St. Louis; D. I. L. Seabaugh, D. G. Seibert, Rusby Seabaugh, B. W. Hays and Albert M. Estes, Jackson; Asa Barnes, Dexter; G. S. Cannon, Fomfelt; S. P. Martin, East Prairie; Edward Crites, Sedgewickville; W. W. Ford, Gordonville; Edward Ford, Bloomfield; W. O. Finney and G. A. Sample, Chaffee; S. C. Slaughter and W. Harry Barron, Fredericktown; G. T. Dorris, Ilmo; J. R. Tweedy and W. Lingle, Cobden, Illinois; Jerome Bredall, Perryville; J. H. Cochran, S. S. Barnes, E. H. G. Wilson, W. H. Wescoat, O. L. Seabaugh, Ben P. Frissell, G. B. Schulz, P. R. Williams, T. J. McGinty, M. H. Shelby, N. F. Chostner, W. E. Yount, H. L. Cunningham, D. H. Hope, George W. Walker, Paul B. Nussbaum, H. V. Ashley and Carl A. W. Zimmermann, Cape Girardeau.

A vote of thanks was extended to Drs. Royston and Hobbs and the meeting was adjourned.

C. A. W. ZIMMERMANN, M.D., Secretary.

CARTER-SHANNON COUNTY MEDICAL SOCIETY

The Carter-Shannon County Medical Society met in the office of Dr. T. W. Cotton, Van Buren, April 18. Members present were Dr. T. W. Cotton, Van Buren; Drs. F. Hyde and W. T. Eudy, Eminence. Guests were Dr. Thelma Buckthorpe; Lt. J. R. Amos, Fremont, and Lt. Dale Vermillion and Lt. W. H. McCarroll, Van Buren, of the Medical Corps of the CCC.

Dr. Cotton exhibited an umbilical cord which was tied in a knot.

The subject of "Parturition" was taken up and discussed in its various phases.

Dr. Buckthorpe discussed presenting sexual questions to high school students and the duty of the relation to youth and parents.

Drs. Eudy and Hyde presented the question of the increasing number of cases of acute appendicitis which was discussed by Lt. Amos Vermillion and Lt. McCarroll.

Dr. Cotton reported an interesting case of occipitoposterior presentation and the management and delivery.

Dr. F. Hyde was reelected president and Dr. W. T. Eudy was reelected secretary.

The Society is considering a skin and cancer clinic in the near future.

Dr. Cotton was elected delegate to the Annual Session at Excelsior Springs and Dr. Hyde alternate.

W. T. EUDY, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society was called to order March 26 with twenty-four members present.

A letter from Dr. Ellis Fischel, St. Louis, chairman of the Cancer Committee, regarding a cancer meeting to be held in Joplin was read. Dr. A. M. Gregg reported that the last time he was in St. Louis he was unable to contact Dr. Fischel but that he would do so and arrange for a meeting at the earliest possible date.

The standing orders given the metropolitan visiting

nurse were presented for approval. It was moved and carried that they be accepted as they stand.

Dr. R. M. James made a few remarks regarding Dr. E. M. Roseberry, Neosho, who recently died of a heart attack and suggested that the Jasper County Medical Society write a letter of consolation to Dr. Roseberry's family.

Mr. Haywood Scott, attorney, spoke on "Legal Problems in Medicine." He gave a delightful paper and pointed out many of the pitfalls that the doctor is subject to in malpractice suits and said that doctors should keep more careful records of cases.

Meeting of April 2

The Society met April 2 with Dr. W. S. Loveland, Joplin, presiding. Twenty-six members were present.

Dr. O. T. Blanke, Joplin, reported that the Joplin Clinical Society would hold a one day clinic on May 28 and suggested that the Jasper County Medical Society meet in joint session and have an out-of-town speaker. Dr. C. T. Reid, Joplin, moved that the Society invite the Clinical Society to a dinner meeting. This was seconded and passed.

Dr. P. W. Walker, Joplin, presented a case of a woman 60 years old who had a deformed kidney which was removed at operation. The kidney showed marked replacement of renal tissue by fatty tissue which filled the pelvis of the kidney and had destroyed considerable amount of the cortex.

Dr. O. T. Blanke, Joplin, reported a case of a man 56 years old who had shortness of breath, fatigue, indigestion, gas and jaundice. Examination revealed an excess rosiness to cheeks, jaundice, prominent abdomen, apex beat dilated to the anterior axillary line. After tapping the abdomen and removing seventeen pints of fluid the liver was found to be somewhat enlarged and diagnosis of mitral stenosis and hepatic cirrhosis was made. Gallbladder visualization was negative. Abdomen was repeatedly tapped, the tapings becoming farther apart and the man felt much improved. He later died. A postmortem revealed a fibropurulent exudate in the abdomen and in both pleural cavities, marked fatty degeneration of the liver, cloudy swelling of the kidneys, an old adhesive pericarditis and sclerotic coronary arteries. There was much discussion as to the cause of the man's death. It was discussed from the point of the mechanical embarrassment of the adhesive pericarditis and the embarrassment suffered from the coronary sclerosis.

Dr. S. A. Grantham, Jr., Joplin, presented a case of a man with a compound fracture of the femur who was treated away from home by extension, later having the femur plated, when it was discovered there was no healing and that the man had a 4 plus Wassermann. He was treated for a cardiovascular condition and improved. Later falling in the hands of cults he was given antiluetic treatment, and as a result of an attempt to remove blood for a Wassermann test he developed a thrombus in the antecubital vein and in a short while developed gangrene of the hand. His condition became steadily worse and as the last resort the gangrenous extremity was removed at the shoulder. After a rather stormy postoperative period the patient convalesced and left the hospital. He later died of cardiovascular failure. In reviewing the case Dr. Grantham stated that many mistakes had been made: First, prolonged extension before the femur was plated; second, intensive antiluetic treatment of a syphilis of long standing causing no symptoms; third, giving intravenous medication to an individual with a thrombotic tendency.

Dr. W. M. Kinney, Joplin, reported a case of coronary sclerosis.

Dr. J. R. Kuhn, Joplin, reported a case of a woman aged 26 years with a primary squamous cell carcinoma of the cervix with marked pelvic involvement.

Dr. S. A. Grantham, Jr., Joplin, reported a case of a woman aged 28 with squamous cell carcinoma of the cervix with no involvement of the pelvic organs.

Following these reports there was a prolonged discussion regarding the relative merits of roentgen ray and radium versus surgery in the treatment of malignant conditions.

Meeting of April 16

The Society was called to order April 16 with fifteen members present.

Dr. O. T. Blanke, Joplin, was appointed secretary pro tem.

Dr. J. R. Kuhn, Joplin, reported a set up of syphilis in three and probably four generations, presumably congenital and not new infections. The youngest is a 13 year old girl.

Dr. H. L. Wilbur, Joplin, reported a case of a 27 year old woman with a weeping dermatitis following two injections of neosalvarsan. She was seen in consultation and gave prognosis of four days or less.

A film "Malaria" was presented through the courtesy of the Winthrop Chemical Company.

Dr. A. M. Gregg, Joplin, discussed malaria and brought up the question of what effect on estivo-autumnal malaria was noted when treated with atabrine. Discussion was by Drs. J. L. Sims, Ed. James and Sam Snider, Kansas City.

J. W. HARDY, M.D., Secretary.

JEFFERSON COUNTY MEDICAL SOCIETY

The Jefferson County Medical Society met at De Soto April 5, with Dr. John F. Rutledge, Crystal City, presiding.

Replies from Speaker J. G. Christy and Senator Geo. A. Rozier were read. The members were pleased to know that there are representatives who are in sympathy with the ideals of medicine and opposed to socialization of the profession.

A letter was read from Dr. M. J. Bierman, St. Louis, inviting the members of the Society to send a representative to make a ten minute talk at the meeting of the St. Louis Medical Society, April 30, on the subject "Effect of the Corporate Practice of Medicine on the Practicing Physician." Dr. J. J. Commerford, Crystal City, moved, Dr. N. W. Jarvis, Festus, seconding, that Dr. Charles E. Fallett, De Soto, represent the Society at this meeting. The consensus was that ideally the patient should be allowed the free choice of a physician but considered it utopian and impossible of realization and that since the law requires that the corporation provide adequate medical care of injured employees, the employer should have a voice in selecting the physician. The members were strongly opposed to corporations not paying reasonable fees for services rendered.

The question of educational newspaper articles under the auspices of the Society was discussed. The members expressed themselves as being opposed to publicity except the customary news items.

It was agreed that the next meeting be held at Crystal City in May, that the women be invited and that Drs. Rutledge and Commerford arrange a banquet and a semiscientific program.

Dr. J. Edgar Stewart, St. Louis, gave an address on "Congenital Deformities."

CHARLES E. FALLET, M.D., Secretary.

PETTIS COUNTY MEDICAL SOCIETY

The Pettis County Medical Society held a special meeting at the Bothwell Memorial Hospital, Sedalia, on April 8. An excellent dinner was enjoyed by the members and guests.

Following the dinner, Dr. Donald Black, Kansas City, presented a paper on "Diabetes Mellitus."

A seven reel talking picture was presented by courtesy of the Eli Lilly Company on "Milestones in Medical Research," portraying the production and standardization of insulin and its clinical application.

G. STAUFFACHER, M.D., Secretary.

RANDOLPH-MONROE COUNTY MEDICAL SOCIETY

The Randolph-Monroe County Medical Society met April 9 in the Public Library Building, Moberly. The meeting was called to order by the president, Dr. C. C. Smith, Moberly.

Miss Frances Daniels, representative of the Missouri Tuberculosis Association, was presented to the Society and made a short talk.

Dr. Dudley A. Robnett, Columbia, spoke on "Carcinoma of the Uterus." This talk was illustrated with lantern slides.

A discussion on "Leukemia" was presented by Dr. M. Pinson Neal, Columbia.

Both of these addresses were well presented and a general discussion followed.

Following the meeting a light lunch was served at the Moberly Candy Works.

MAX E. KAISER, M.D., Secretary.

MISCELLANY

RELIEF EXPENDITURES IN 1934

This table showing medical aid reported during 1934 from direct relief, total direct relief, and the percentage of medical aid to total direct relief was furnished by the Missouri Relief and Reconstruction Commission, Jefferson City, on April 16, 1935.

| | Medical Aid | Total Direct Relief | Per Cent of Medical Aid to Total Direct Relief |
|----------------|-------------|---------------------|--|
| Adair | \$ 3,976.40 | \$ 16,290.05 | 24.41 |
| Andrew | 941.91 | 2,722.82 | 34.60 |
| Atchison | 2,689.12 | 5,111.40 | 52.61 |
| Audrain | 340.35 | 7,004.24 | 4.86 |
| Barry | 102.58 | 13,575.44 | .76 |
| Barton | 1,809.20 | 22,106.55 | 8.18 |
| Bates | 1,059.26 | 12,280.18 | 8.63 |
| Benton | 384.90 | 1,063.85 | 36.18 |
| Bollinger | 174.75 | 5,002.31 | 3.49 |
| Boone | | 5,295.88 | |
| Buchanan | 7,355.30 | 209,523.74 | 3.51 |
| Butler | 1,337.37 | 53,315.23 | 2.51 |
| Caldwell | 190.66 | 3,401.13 | 5.61 |
| Callaway | 173.40 | 1,216.75 | 14.25 |
| Camden | 263.18 | 6,460.63 | 4.07 |
| Cape Girardeau | 144.65 | 2,180.13 | 6.63 |
| Carroll | 671.08 | 4,689.65 | 14.31 |
| Carter | 344.50 | 6,581.48 | 5.23 |
| Cass | 789.78 | 4,863.52 | 16.24 |
| Cedar | 374.90 | 11,892.55 | 3.15 |
| Chariton | | 1,213.56 | |
| Christian | 1,151.20 | 8,348.81 | 13.79 |
| Clark | 4.00 | 2,808.03 | .14 |
| Clay | 3,147.17 | 50,116.07 | 6.28 |
| Clinton | 2,039.63 | 10,028.41 | 20.34 |
| Cole | 859.90 | 23,543.43 | 3.65 |

This analysis was included in the Secretary's Report at the Excelsior Springs Session.

BOOK REVIEWS

| | Medical Aid | Total Direct Relief | Per Cent of Medical Aid to Total Di- rect Relief |
|----------------|--------------|------------------------|---|
| Cooper | | 2,305.28 | |
| Crawford | 240.59 | 23,521.40 | 1.02 |
| Dade | 612.30 | 5,353.02 | 11.44 |
| Dallas | 599.21 | 6,791.13 | 8.82 |
| Davies | | 3,681.21 | |
| DeKalb | 520.88 | 1,827.65 | 28.50 |
| Dent | 138.01 | 8,691.68 | 1.59 |
| Douglas | 303.85 | 9,270.43 | 3.28 |
| Dunklin | 2,560.16 | 50,219.65 | 5.10 |
| Franklin | 30.50 | 2,437.96 | 1.25 |
| Gasconade | 50.00 | 351.97 | 14.21 |
| Gentry | 651.88 | 3,469.09 | 18.79 |
| Greene | 340.08 | 156,551.57 | 2.17 |
| Grundy | | 4,454.18 | |
| Harrison | 37.80 | 1,798.51 | 2.10 |
| Henry | | 594.30 | |
| Hickory | 427.85 | 1,535.97 | 27.85 |
| Holt | 656.91 | 1,862.02 | 35.27 |
| Howard | 431.56 | 3,796.88 | 11.36 |
| Howell | 458.31 | 10,813.88 | 4.24 |
| Iron | 507.59 | 21,119.79 | 2.40 |
| Jackson | 17,535.36 | 611,302.16 | 2.87 |
| Kansas City | 32,644.73 | 1,014,089.10 | 3.22 |
| Jasper | 6,568.74 | 244,016.57 | 2.69 |
| Jefferson | 1,801.38 | 46,330.49 | 3.89 |
| Johnson | 272.75 | 2,975.31 | 9.17 |
| Knox | 105.93 | 2,367.98 | 4.47 |
| Laclede | 727.94 | 8,217.98 | 8.86 |
| Lafayette | 115.65 | 5,671.54 | 2.04 |
| Lawrence | 1,736.94 | 21,473.10 | 8.09 |
| Lewis | | 1,008.12 | |
| Lincoln | 204.64 | 5,037.71 | 4.04 |
| Linn | 408.40 | 13,144.95 | 3.11 |
| Livingston | 285.66 | 9,220.53 | 3.10 |
| McDonald | 1,328.02 | 19,601.65 | 6.78 |
| Macon | 379.53 | 17,822.43 | 2.13 |
| Madison | 369.55 | 21,787.16 | 1.70 |
| Maries | 222.78 | 7,823.47 | 2.85 |
| Marion | 1,021.29 | 16,259.98 | 6.28 |
| Mercer | 659.75 | 3,961.98 | 16.65 |
| Miller | 137.24 | 1,646.03 | 8.34 |
| Mississippi | 456.80 | 1,432.39 | 31.89 |
| Moniteau | 142.50 | 801.33 | 17.78 |
| Monroe | | 1,294.96 | |
| Montgomery | 131.04 | 1,646.46 | 7.96 |
| Morgan | 20.20 | 13,450.21 | .15 |
| New Madrid | 381.22 | 26,397.38 | 1.44 |
| Newton | 513.58 | 32,513.21 | 1.58 |
| Nodaway | 2,659.23 | 5,532.87 | 48.06 |
| Oregon | 292.59 | 8,966.88 | 3.26 |
| Osage | 75.95 | 4,073.07 | 1.86 |
| Ozark | 15.49 | 6,547.72 | .24 |
| Pemiscot | 2,631.17 | 38,332.95 | 6.86 |
| Perry | | 678.23 | |
| Pettis | 3,457.67 | 62,141.69 | 5.56 |
| Phelps | 445.80 | 13,651.40 | 3.27 |
| Pike | 5.50 | 3,698.90 | .15 |
| Platte | 377.30 | 4,536.24 | 8.32 |
| Polk | 1,783.11 | 7,012.60 | 25.43 |
| Pulaski | 228.80 | 4,257.67 | 5.37 |
| Putnam | 256.30 | 2,976.81 | 6.25 |
| Ralls | 802.66 | 9,139.27 | 8.78 |
| Randolph | 1,776.59 | 30,207.71 | 5.88 |
| Ray | 549.18 | 6,829.86 | 8.04 |
| Reynolds | 142.00 | 9,978.06 | 1.42 |
| Ripley | 86.65 | 8,669.70 | 1.00 |
| St. Charles | 453.18 | 9,378.93 | 4.83 |
| St. Clair | 23.50 | 1,508.40 | 1.55 |
| St. Francois | 20,755.98 | 161,966.98 | 12.81 |
| St. Louis | 7,515.76 | 1,372,949.32 | .55 |
| St. Louis City | 88,034.96 | 7,483,486.97 | 1.17 |
| Ste. Genevieve | 32.00 | 901.56 | 3.55 |
| Saline | 2,542.60 | 6,962.19 | 36.52 |
| Schuyler | 6.25 | 1,013.74 | .61 |
| Scotland | 519.38 | 2,463.38 | 21.08 |
| Scott | 2,113.69 | 28,549.06 | 7.40 |
| Shannon | 121.38 | 8,283.40 | 1.46 |
| Shelby | 49.55 | 3,258.90 | 1.52 |
| Stoddard | 857.83 | 21,388.78 | 4.01 |
| Stone | 1,396.18 | 13,509.95 | 10.33 |
| Sullivan | 192.07 | 1,874.98 | 10.24 |
| Taney | 293.94 | 13,238.63 | 22.20 |
| Texas | 198.65 | 6,088.79 | 3.26 |
| Vernon | 1,016.77 | 18,821.68 | 5.40 |
| Warren | 227.10 | 1,087.82 | 20.87 |
| Washington | 1,435.05 | 34,378.19 | 4.17 |
| Wayne | 305.72 | 7,321.04 | 4.17 |
| Webster | 712.76 | 8,009.01 | 8.90 |
| Worth | 1,009.56 | 2,292.37 | 44.04 |
| Wright | 379.91 | 7,560.74 | 5.02 |
| Grand total | \$252,844.05 | \$12,405,904.03 | 2.04 |

USEFUL DRUGS. A List of Drugs Selected to Supply the Demand for a Less Extensive Materia Medica with a Brief Discussion of Their Actions, Uses and Dosage. Edited by Robert A. Hatcher, Ph.M., Sc.D., M.D., and Cary Eggleston, M.D. Prepared under the Direction and Supervision of the Council on Pharmacy and Chemistry of the American Medical Association. Ninth edition. Chicago: American Medical Association. 1934. Price 60 cents.

This book represents a valuable and increasingly effective phase of the efforts of the Council on Pharmacy and Chemistry on behalf of rational therapeutics. Since its first appearance in 1913 it has become a recognized work in its field. It has been adopted as a textbook by teachers of therapeutics in the best medical schools and by various examining and licensing boards. The various editions and revisions since that time have been undertaken in the effort to keep it abreast with the advance of therapeutics. Drugs that have become obsolete have been deleted, and others the value of which has become established have been added. The statements of actions, uses and dosage of the various drugs are revised after discussion by the whole Council. They represent the latest and best results of therapeutics and pharmacologic revision. The present edition is in line with the constant aim of the Council, which has been to present a selective and informative yet comprehensive compendium of the more useful preparations in the medical armamentarium. There have been some additions to the list of drugs and a few have been deleted. Individual descriptions show evidence of careful editing. Typographically the text is an improvement on previous editions by reason of more generous spacing, which makes it easier on the eyes. As it stands, the book is an authoritative, intelligent, critical and entirely adequate textbook for the use of teachers and examiners, as well as for reference by the busy practitioner. It is an integral and constructive part of the Council's efforts in the promotion of the rational use of drugs.

INTERNATIONAL CLINICS. By leading members of the medical profession throughout the world. Edited by Louis Hamman, M.D., Visiting Physician, Johns Hopkins Hospital, Baltimore, Md. Volume IV, forty-fourth series. Philadelphia: J. B. Lippincott Company. 1934.

There are nine articles on medicine, two articles on surgery, two on gynecology and obstetrics, one on clinical pathology, one on ophthalmology and one on dermatology. In addition there are two case histories for study and self diagnosis from the Pittsburgh Clinic.

Of the medical articles that on nondiabetic glycosuria by Alexander Marble, Boston, seemed to your reviewer of great value and practical appeal. Dr. Lemann and Dr. Sullivan, New Orleans, show the fallacy of basing the therapy of diabetes upon the fasting blood sugar determinations. Dr. Hurwitz, San Francisco, discusses the treatment of allergic asthma by desensitization. Dr. Tobias, St. Louis, has an article on the status of fever therapy in neurosyphilis. Dr. Moorman, Oklahoma City, has an article on artificial pneumothorax in the treatment of pneumonia.

Most general practitioners will be interested in the article on "The Modern Concept of Sterility" by Bland and First, Philadelphia.

The two case histories set up for diagnosis will be as interesting as cross-word puzzles for those who have the time to work over them. G. H. H.

METHODS OF TREATMENT. By Logan Clendening, M.D., Clinical Professor of Medicine, Medical Department of the University of Kansas; Attending Physician, Kansas City General Hospital, et al. With chapters on special subjects by H. C. Anderson, M.D., Ursulla Brunner, R. N.; J. B. Cowherd, M.D.; Paul Gempel, M.D.; H. P. Kuhn, M.D.; Carl O. Rickter, M.D.; F. C. Neff, M.D.; E. H. Skinner, M.D.; E. R. DeWeese, M.D.; and O. R. Withers, M.D. Fifth edition. St. Louis: The C. V. Mosby Company. 1935. Price \$10.00.

The "Methods of Treatment," as the author points out, was planned to furnish an outline of all the methods of treatment in internal medicine. The field is large and of necessity all subjects cannot be handled in detail satisfactory to everyone; but the reader who uses the book as a source of information which the physician does not ordinarily memorize but feels the need of from time to time in easily available form will not be disappointed.

The arrangement of material is the same as that used in preceding editions. The book is divided into two parts. The first division deals with procedures, actions, etc., of drugs, prophylaxis, hydrotherapy and various forms of medication. The second part takes up the treatment of the various diseases and considers the application of those procedures discussed in the first part.

While no change has been made in the general plan of the book each chapter has been brought up-to-date, in some cases new therapy has been added, in others the former therapy has been discarded or modified, as in the instance of the use of digitalis in pneumonia. Several new authors have been added to those contributing chapters on special subjects.

The volume contains 858 pages, has a thoroughly adequate index and, while the author states "In deciding whether a given drug, diet or form of treatment should be mentioned, I have followed my own taste entirely," his own taste has dictated a comprehensive and valuable volume. S. S. B.

THE POWER TO LOVE. A Psychic and Physiologic Study of Regeneration. By Edwin W. Hirsch, B.S., M.D., Associate in Urology, College of Medicine, University of Illinois. New York: Alfred A. Knopf. 1934. Price \$4.00.

Dr. Edwin W. Hirsch has produced in this book a real exposition of the multitudinous phases of sexual phenomena. It is a carefully prepared work written by a scientific physician, primarily for the education of the laity but a book which every physician could read with profit.

The book is divided into ten chapters dealing with various phases of sex mechanism and sexual life. He discusses in simple and pleasing fashion the anatomical and physiological structures, then considers sexual debility extensively, depicting its many causes and contributing agencies and offers suggestions for the correction of this frequent, very annoying and disturbing condition.

The chapter dealing with the art of sexual technic is most minutely detailed and is designed for the very necessary purpose of instructing the laity in the proper performance of the sexual act.

It is a book which can do an immense good toward sexual education if it receives a proper circulation. J. R. C.

SYMPOSIUM ON SILICOSIS. An unofficial transcript of the Silicosis Symposium held in connection with the Trudeau School of Tuberculosis at Saranac Lake, N. Y., June 18 to 22, 1934. Edited by B. E. Kuechle, Claims Manager, Employers Mutuals, Wausau, Wisconsin.

This pamphlet containing ninety-eight pages is an unofficial transcript of the symposium held at the Trudeau School June 18 to 22, 1934. It represents the presentations and discussions of a group of physicians and hygienic engineers well worth the study of anyone interested in the subject.

The etiology of silicosis is admirably handled by Dr. R. R. Jones. "The Dust Concentrations and Methods of Measurement" is presented in a splendid fashion by Mr. Donald E. Cummings. Dr. L. U. Gardner gives a splendid discussion on experimental and human pathology resulting from silicosis and Mr. Donald E. Cummings gives a fine discussion of occupational history. The clinical aspects and physical findings are given very splendid consideration by Dr. Henry K. Kessler, while Drs. H. L. Sampson and H. K. Pancoast give a very comprehensive discussion of the roentgenographic findings and diagnosis. Professor Philip Drinker of Harvard University discusses engineering methods of prevention, while certain medical and legislative measures of prevention are admirably handled by Dr. A. J. Lanza, the medical director of the Metropolitan Life Insurance Company. Dr. Wm. S. McCann describes nicely fibrosing in lung disease.

Anyone interested in the problems of silicosis will find this pamphlet comprehensive, interesting and instructive. J. C. L.

CATARACT, ITS ETIOLOGY AND TREATMENT. By Clyde A. Clapp, M.D., F.A.C.S., Associate Professor of Ophthalmology, Johns Hopkins University, etc. Illustrated with 92 engravings. Philadelphia: Lea & Febiger. 1934. Price \$4.00.

Dr. Clapp's book is quite different from other works on cataract in being more comprehensive than other books written in English on the same subject. More space has been given to embryology, comparative anatomy, anatomy, physiology and chemistry of the lens. In the last three years a vast amount of work has been done on chemistry and metabolism of the lens and this is all briefly put forth.

The operative treatment is shortened to the standard methods and does not dwell extensively on antiquated or unusual procedures. These two hundred forty-three pages can be easily covered in an evening's reading and should be of great interest not only to the oculist but to one engaged in general practice. A. W. M., III.

DIABETIC MANUAL FOR PATIENTS. By Henry J. John, M.A., M.D., F.A.C.P., MAJ. M.R.C., Director of the Diabetic Department and Laboratories of the Cleveland Clinic. Second edition. St. Louis: The C. V. Mosby Company. 1934. Price \$2.00.

This is a somewhat repetitious little volume which explains to the patient the nature of his disease and the means necessary to maintain health and physical well-being. The importance of physician rather than patient as arbiter of treatment is consistently stressed. Schematic representations of the chemical content of various foods as well as the usual food tables, sample menus, and special recipes are included. The book may be recommended to patients. B. Y. G.

INTERNATIONAL CLINICS. By leading members of the medical profession throughout the world. Edited by Louis Hamman, M.D., Visiting Physician, Johns Hopkins Hospital, Baltimore, Md. Forty-fourth series, Vols. I and II. Philadelphia: J. B. Lippincott Co., 1934.

The articles in these two issues of this venerable periodical now in its forty-fourth year, which seem to your reviewer of outstanding timeliness, are the following: "Hepatic Insufficiency," by Noel Fiesinger of Paris; "The Pathogenesis of Anterior Poliomyelitis," by Thelma Lovett; "Concerning the Broadening of the Indications for Operation in Exophthalmic Goiter Through the Recognition at the Bedside of a Secondary Thyrogenic Injury to the Liver," by Erich Schneider of Freiburg, Germany; "Operative Collapse Therapy in the Treatment of Pulmonary Tuberculosis," by the Matsons of Portland; and "Estimating the Extent of Disability," by Earl D. McBride of Oklahoma City.

In such a publication two objectives are possible. One is to have a statement from a superior man on some subject on which he is expert; and the other is to have a review of latest developments in his field with clinical comments. But in as much as epoch making contributions to the medical literature are rare, articles of the first type are also rare. Furthermore, it is difficult for anyone but a master of the subject to edit critically the contributions to the current literature in any given subject. Therefore the publishers are hard put to it to secure adequate material for these serial publications.

We are glad to see Fiessinger's article because he is the leader in his school of thought regarding the liver. And his opinions are worth studying. The Matsons are also leaders in the field of collapse therapy in the treatment of pulmonary tuberculosis. Their enthusiasm has led them to devise extraordinary measures for the treatment of their cases. But as Lawrason Brown pointed out at the National Tuberculosis Association meeting at Cincinnati: It remains to be seen whether in the long run the results from this method of therapy are going to be much greater and larger than those obtained under the old system of rest, fresh air and so forth. The question is still debatable as to whether these patients treated by operative means do not still give out enough tubercle bacilli to act as carriers for the family circle.

In general these publications are worth reading, if for no other reason than to cause one to review his own opinions and procedures in the various disease conditions mentioned.

G. H. H.

POSTURES AND PRACTICES DURING LABOR AMONG PRIMITIVE PEOPLES. Adaptations to Modern Obstetrics. By Julius Jarcho, M.D., F.A.C.S., New York. With 130 illustrations. New York: Paul B. Hoeber, Inc. 1934. Price \$3.50.

The author begins the preface with these words: "The purpose of this book is to transmit to modern obstetricians the application of those postures and practices utilized to advantage by primitive peoples in coping with their obstetric problems."

A large clinic and exceptional teaching contacts have furnished the author an excellent opportunity to assemble the material in this book. The cuts and discussions are interesting but morbidly detached from modern procedures.

If a similar compilation were published one thousand years hence recording present day methods it

probably would be equally interesting and grotesque. The illustrations show the crude resourcefulness of ignorant people whose chief asset was superstition. They unwittingly anticipated some modern procedures; for instance, they employed organotherapy by feeding dessicated placenta to nursing mothers as a galactagogue.

The author discusses the pelvis in women of pure racial strains who experienced normal labors in contrast to childbirth when contaminated by cross breeding. He deplores the fact that pelvimetry is not as extensively practiced by modern obstetricians as its importance warrants. It might be mentioned that a trial labor is oftentimes more convincing than pelvic measurements. If this fails a low cervical cesarean section carries a very low mortality. The size of the pelvis bears a relative ratio to the size of the baby's head, which must be definitely determined if pelvimetry is to assume major importance. One very modern and practical chapter on postpuerperal exercise with excellent cuts is appended.

The Jarcho labor chair which has been extensively employed by the author has not obtained wide popularity.

The author is to be admired for the enormous amount of serious effort which this monograph has entailed. It will find a place in large medical libraries frequented by obstetricians interested in historical research.

M. A. H.

MINOR SURGERY IN GENERAL PRACTICE. By W. Travis Gibb, M.D., Consulting Surgeon, City Hospital and Central and Neurological Hospitals, etc. With 148 illustrations. New York: Paul B. Hoeber, Inc. 1934. Price \$5.00.

This new monograph presents a summary of minor surgical indications and procedures, but a lack of detail and paucity of illustration detract somewhat from its value as a reference volume or as an undergraduate text.

Practitioners will doubtless differ with some of the suggestions, e. g., that anterior splanchnic anesthesia (Finsterer) is a minor surgical procedure, or that tonsillectomy should be reserved for the specialist. The reviewer feels that a consideration of gas gangrene would have been desirable and that evipal might be worthy of mention.

Inasmuch, however, as the volume reflects one man's opinions and experiences, it makes rather interesting reading.

B. S. P.

RULES FOR RECOVERY FROM PULMONARY TUBERCULOSIS. A Layman's Handbook of Treatment. By Lawrason Brown, M.D., Saranac Lake, New York. Sixth edition, thoroughly revised. Philadelphia: Lea & Febiger. 1934. Price \$1.75.

This manual is a closely written, succinct statement of the basic principles of the nature and treatment of tuberculosis. It is not spectacular, and for a good many patients will be hard reading because nothing great is promised and everything is stated in general terms.

Of course, physicians realize that the book is absolutely sound, and that if the patients will get the principles thoroughly in mind conditions will improve. But the average layman, especially a sick layman, wants something very readable and spectacular, and this is not it. However, as a textbook for our patients I cannot recommend it too highly.

G. H. H.

MANUAL OF CLINICAL LABORATORY METHODS. By Pauline S. Dinmitt, Ph.G., Medical Technologist for the Stout Clinic, Sherman, Texas. Illustrated with thirty-six engravings, including seven full page colored plates. Philadelphia: F. A. Davis Company. 1934. Price \$2.00.

According to the author's preface this book is primarily a treatise on the details of clinical laboratory procedures. It is designed to answer the requirements of students and internists.

The technic when given in detail is clear and concise. The illustrations although not original are valuable in checking up results of laboratory procedures.

The criticism that we have to make is that it is not sufficiently definite in detail for a beginner in laboratory work, nor is it comprehensive enough to be of added value to the laboratory technician who already has in his possession the standard textbooks of laboratory procedure. In other words, while too brief and indefinite in detail for a beginner, it has added little or nothing to the literature for the experienced worker.

There is a much too brief description of the Schilling methods; the methods for making culture media are omitted, and the identification of bacteria through culture methods is noticeably absent. There is only a short paragraph devoted to the identification of amebae and parasites of the intestinal tract. No description of colorimetric methods is given.

R. B. H. B.

THE DANGEROUS AGE IN MEN. A Treatise on the Prostate Gland. By Chester Tilton Stone, M.D. New York: The Macmillan Company. 1934. Price \$1.75.

This treatise, written by a physician in a free-running style, not too technical for the layman but sufficient enough to be engaging, places the dangerous period around forty years of age due to the prostate gland. There is an anatomical description of the prostate and seminal vesicles and a discussion of the diseases to which these glands are subject. A comprehensive description of sexual maladies together with their treatment is given.

The treatise is timely and valuable in that it endeavors to give a clear picture of these organs, so little understood, and proper advice as to their normal functioning and care thus preventing the serious consequences of their wrong use. It reminds one of a kindly confidential chat one would hope to receive from his informed medical adviser on the subject of the prostate gland. The laudatory message of the book is prevention. A brief chapter addressed to the wives is appended.

G. C.

ALLERGY AND APPLIED IMMUNOLOGY. A Handbook for Physician and Patient, on Asthma, Hay Fever, Urticaria, Eczema, Migraine and Kindred Manifestations of Allergy. By Warren T. Vaughan, M.D., Richmond, Virginia. Second edition. St. Louis: The C. V. Mosby Company. 1934. Price \$5.00.

The author has undertaken an impossible task, i. e., the production of a book suitable for both physician and patient. In order to simplify the presentation of the material on the principles of immunology to the level of the layman he has been forced to abandon strict accuracy. On the other hand, in order to supply the physician with adequate material, he has

stepped out of the range of the average reader. As with all compromises, he satisfies neither side.

However, the book is a clear summary of present knowledge of allergy, fairly accurate and not extreme. To the exceptionally intelligent patient or to the physician unacquainted with allergy the book will be of value. For the experienced allergist it adds nothing. There remains a need for a simple, concise manual to place in the hands of the allergic patient of average capacity.

K. B.

THE 1934 YEAR BOOK OF THE EYE, EAR, NOSE AND THROAT. The Eye, by E. V. L. Brown, M.D., Professor of Ophthalmology, University of Chicago, and Louis Bothman, M.D., Associate Professor of Ophthalmology, University of Chicago; The Ear, Nose and Throat, George E. Shambaugh, M.D., Professor of Otolaryngology, Rush Medical College of the University of Chicago, and Elmer W. Hagens, M.D., Assistant Clinical Professor of Otolaryngology, Rush Medical College of the University of Chicago, with the collaboration of George E. Shambaugh, Jr., M.D., Clinical Assistant in Otolaryngology, Rush Medical College of the University of Chicago. Chicago: The Year Book Publishers. 1935. Price \$2.50.

This volume is one of ten Practical Medicine Year Books which now are in their thirty-fourth year. The book is divided into three sections dealing with the eye, the ear, and the nose and throat. Each section is clearly and comprehensively handled.

In the division on the eye the physiology of the various parts of the eye is discussed and followed with the disease peculiar to that part. The division on the ear includes physiology, diagnosis and treatment including a valuable section on deafness. The part on nose and throat is well organized as to subject matter and comprehensive as to physiology, diagnosis, treatment and surgery. As either text or reference the book is valuable to practitioners specializing in these fields.

S. S. B.

PHARMACOLOGY AND THERAPEUTICS. By Arthur R. Cushny, M.A., M.D., LL.D., F.R.S., late Professor of Materia Medica and Pharmacology in the University of Edinburgh. Tenth edition, thoroughly revised by C. W. Edmunds, A.B., M.D., and J. A. Gunn, M.A., M.D., D.Sc. Illustrated with 75 engravings. Philadelphia: Lea & Febiger. 1934. Price \$6.50.

The tenth edition of this classic textbook in its field needs no review. The second edition published since Dr. Cushny's death is ably done by Dr. Edmunds and Dr. Gunn; the latter responsible for the revisions from the British Pharmacopoeia to date.

This text has maintained its popularity since the first edition in 1899.

R. M. H.

EXTERNAL DISEASES OF THE EYE. By Donald T. Atkinson, M.D., Consulting Ophthalmologist to the Santa Rosa Infirmary and the Nix Hospital, etc., Illustrated with 479 engravings. Philadelphia: Lea & Febiger. 1934. Price \$7.50.

This is a most comprehensive volume covering the subject matter thoroughly. It is unique because the terminology is such that any physician can understand the author's meaning without a lot of referred reading.

A great deal of new treatment and new surgery is also introduced.

J. W. H.

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THE VALUE OF IONIZATION IN THE TREATMENT OF CERTAIN FORMS OF ALLERGY

ARTHUR M. ALDEN, M.D.

ST. LOUIS

Ionization or iontophoresis has for many years been used in the treatment of various diseases of the skin and mucous membranes. One of the first references to its use in the nose was that by Baber¹ published in 1898. He suggested its employment in the treatment of nasal hydrorrhea and in the light of our present information it is probable that most of his watery nose cases were really allergic in origin. At one time or another ionization has been employed in the treatment of almost all of the obstructive or infective diseases of the nose. Fox,² Hollender and Cottle,³ Harris,⁴ Feldman,⁵ Gale,⁶ Smith,⁷ Cahill,⁸ McCoy,⁹ Sputh,¹⁰ McCurdy,¹¹ have each reported on the use of the galvanic current and solutions of zinc or other metals in the treatment of these various nasal conditions.

In 1927 Demetriades¹² reported that ionization of the nasal mucosa, using a weak galvanic current and a calcium electrolyte, gave relief in certain cases of seasonal and perennial nasal allergy. Franklin,¹³ in 1931 and again in 1932,¹⁴ announced definite successes in the treatment of these conditions by the use of zinc ionization.

In 1934 Warwick¹⁵ reported a large series of cases which had obtained partial or complete relief from their allergic symptoms following ionization with a combination of both zinc and cadmium in the electrode and electrolyte.

Ionization depends upon the principle that when a galvanic current is passed between two electrodes which are immersed in a conducting solution, positively charged metallic ions pass from the cathode and are deposited

upon the metallic anode. When certain areas of the body are substituted for the conducting solution the same principle holds good and the ion carrying current passes from the positive to the negative pole, the intervening tissues merely acting as a conductor. At first it was supposed that the action of the treatment upon the tissues contiguous to the cathode was due to metallic ions which were actually driven into the tissues. This has been definitely disproved. However, a surface change in the tissues exposed to the charged electrolyte does take place. At the expiration of a nasal ionization, using a zinc electrode and a salt of zinc in the electrolyte, the mucosa is covered with a grey deposit which is probably a mild surface coagulation. That this is not due to the chemical action of the electrolyte solution alone has been definitely proved. Hollender¹⁷ tested this in control patients where noses were packed in every way similar to the preparation for ionization but no current was used. The results were entirely negative in each case. I ionized five patients, doing the left side of each case in the routine manner. On the right side of each of these patients saline was substituted for the zinc sulphate electrolyte, the same electrode and same time-ampere ratio was given. The results on the side where saline was used were entirely nil and each was reionized in the standard manner a few days later. Thus, neither the electrolyte nor the galvanic current alone can produce the reaction; but the proper combination of the two is a prerequisite for success.

My experience with ionization in the treatment of hay-fever began the first week in September, 1933, when Dr. Warwick was kind enough to come to St. Louis and demonstrate this procedure to me. The results in the demonstration cases were so prompt and satisfactory that I decided to investigate this treatment more thoroughly on a group of my own cases.

During the 1933 season I ionized nineteen

Read before the Ear, Nose and Throat Session at the 78th Annual Meeting of the Missouri State Medical Association, Excelsior Springs, May 6-9, 1935.

cases of typical autumnal hay-fever. One of these patients was a child 10 years old, in her third season of the disease. The others were all adults between 22 and 58 years. All of these cases were ionized during the period when the symptoms of the disease were definitely manifest, and four of the adults also had asthma at time of the ionization. Eleven of these patients had previously been treated by desensitization, but with unsatisfactory results. Five had received only local treatment, and three, including the child, had received no treatment of any sort.

The result of the ionization in this group was immediate and complete relief in each case of all allergic symptoms for the remainder of the season. The promptness with which the eye symptoms and the nasal itching abated following the treatment was indeed spectacular. In all these cases the nose was entirely blocked with a membrane the day following the ionization. This membrane remained in place for from three to four days, then began to loosen and was, as a rule, entirely gone by the end of the sixth day. Immediately following the expulsion of the membrane the nasal mucosa was found to be reddened and quite sensitive; but this condition subsided very rapidly and by the end of the second week all noses appeared to be normal.

Since this first season we have used this method of treatment for all our cases of both perennial and seasonal nasal allergy. Our percentage of complete relief was varied from 60 to 70 per cent, depending upon the type of the disease and the seasonal timing of the treatment, and our total failures have been less than 20 per cent. During the year of 1934 we found that those cases of hay-fever which were ionized prior to the beginning of the disease presented a much larger number of recurrences than the group that were treated after the onset of the symptoms. There were, however, enough exceptions to this rule that we were somewhat at loss to explain several of our failures.

In an effort to learn more about the mechanism involved in the symptomatic relief that so frequently followed ionization and yet in other apparently similar cases failed, we had a group of patients studied from an immunologic standpoint before and after the treatment. These patients were treated in the Washington University out-patient department after a careful allergic history had been taken and rhinologic examination done by one of the members of the staff. This included a cytologic study of the nasal secretions in which the percentage of eosinophiles was estimated, intradermal skin tests done,

positive reactions measured with a planimeter and recorded in square centimeters. The presence of specific reagins was determined by the usual passive transfer of blood serum to the skin of a nonsensitive individual. The patient was then ionized and these same procedures repeated and recorded at the end of two weeks and again three months later. This work was done under the direction of Dr. H. D. Alexander,¹⁸ and reported in detail by him in the March, 1935, *Journal of Allergy*.

Although this was a relatively small number of cases, it was noteworthy that the group in which ionization gave the best results were those in which reagins in the blood serum were absent or present in small numbers. The converse was in a general way also true, that those cases in which ionization gave little or no relief were those in which the reagin content in the blood serum was relatively high. Whether or not this type of examination will offer a criterion as to the result that may be expected from ionization in any given patient can only be determined when a much larger series of patients has been studied. The preparation of such a series of carefully investigated cases is now well under way in the department of otolaryngology at Washington University.

The criticism of this work by McMahon¹⁹ and others, based upon the hypothetical damage that might possibly accrue to the nasal mucous membrane as the direct result of the ionization, is entirely without scientific basis. When we stop to think that we can entirely denude the maxillary sinus of its lining epithelium and yet in a few weeks find it completely covered with a ciliated mucosa which is functionally normal in every respect and in addition to this, considering the fact that the mucosa of the nasal chamber proper is much more resistant to trauma or environmental change than is that lining the sinus cavities, it is difficult to believe that, as the result of the slight irritative factor involved in ionization or other similar procedures any permanent damage would occur to the nasal mucous membrane.

However, to be entirely certain about this point, sections of the nasal mucosa were removed from the noses of both animals and humans who had been previously ionized and these sections have shown, in every case, a complete return to normal with no microscopic evidence of pathology that could logically be attributed to the ionization.

During the last year and a half ionization along the lines suggested by Warwick has been used, not only in our own clinic but it

has been employed with success in the treatment of several of the manifestations of allergy by well recognized otolaryngologists all over America. A group of these men were asked to tabulate their results and the following tables represent a summary of the relief obtained by them in over seven hundred bilateral ionizations, all done for seasonal or perennial allergic rhinitis and asthma.

TABLE 1. Hay-Fever, Uncomplicated
Total Cases, 416

| | | |
|--------------------------|-----|-------|
| Complete relief | 260 | 63.4% |
| 80 to 95 per cent relief | 46 | 11.2% |
| 60 to 80 per cent relief | 17 | 4.1% |
| 20 to 60 per cent relief | 54 | 13.1% |
| No relief | 32 | 7.7% |

Comment.—Although the complete relief was only 63 per cent, if one adds to this the 80 to 95 per cent group it gives 75 per cent of the cases that received 80 to 100 per cent relief following ionization. It is noteworthy that the complete failures in this group were only about 8 per cent. It must be remembered that the majority of these patients were ionized just before or after the onset of the symptoms last year and it is by no means expected that the same ratio of freedom from symptoms will hold good in these patients during the coming season. Certainly, some of them will have resensitized their nasal mucosa and will need retreatment during this coming summer.

TABLE 2. Asthma
Total Cases, 27

| | |
|--------------------------|-----------|
| Complete relief | 10 to 37% |
| 80 to 95 per cent relief | 3% |
| 60 to 80 per cent relief | 1% |
| 20 to 60 per cent relief | 1% |
| No relief | 12 to 44% |

Comment.—The per cent of relief obtained in this group of cases is only slightly more than half that in table 1 and the failures are more than five times as many as occurred in hay-fever. One possible explanation is that there have been included in this relatively small group several cases of asthma that were not of allergic origin.

TABLE 3. Hay-Fever and Asthma
Total Cases, 161

| | Hay-Fever | Asthma |
|--------------------------|--------------|-------------|
| Complete relief | 106 or 66.2% | 85 or 53.1% |
| 80 to 95 per cent relief | 14 or 8.7% | 13 or 8.2% |
| 60 to 80 per cent relief | 15 or 8.9% | 18 or 11.2% |
| 20 to 60 per cent relief | 14 or 8.7% | 23 or 14.3% |
| No relief | 12 or 7.4% | 21 or 13.1% |

Comment.—It is interesting to note that in this group the 80 to 100 per cent figure of hay-fever relief is exactly the same as that in the table for hay-fever alone. The relief for the asthma in this group is much higher and the figure for failures much lower than in table 2 which was for asthma alone. This is probably accounted for by the fact that the asthma in all these cases was associated with hay-fever and is thus definitely allergic in origin.

TABLE 4. Allergic Rhinitis
Total Cases, 73

| | |
|--------------------------|-------------|
| Complete relief | 34 or 46.5% |
| 80 to 95 per cent relief | 11 or 15. % |
| 60 to 80 per cent relief | 5 or .8% |
| 20 to 60 per cent relief | 14 or 19.1% |
| No relief | 9 or 12.3% |

Comment.—The figure for high relief in this series of collected cases is surprisingly low when compared with the results obtained in our own clinic where the diagnosis of this condition is made only after a care-

fully taken allergic history, cytological study of the nasal secretions and intradermal tests. Our results obtained by ionization of cases of rhinitis of definitely proved allergic origin are much better than these. My impression is that there have probably been included in this group cases of rhinitis that were not allergic and thus did not respond so well to ionization.

TABLE 5. Hay-Fever and Allergic Rhinitis
Total Cases, 28

| | Hay-Fever | Allergic Rhinitis |
|--------------------------|-------------|-------------------|
| Complete relief | 22 or 78.5% | 19 or 64.3% |
| 80 to 95 per cent relief | | 3 or 17.1% |
| 60 to 80 per cent relief | 2 or 7.1% | 2 or 7.1% |
| 20 to 60 per cent relief | 1 or 3.5% | 1 or 3.5% |
| No relief | 3 or 17.1% | 3 or 17.1% |

Comment.—The hay-fever relief figure is again about the same as in the preceding tables. The figure for relief from allergic rhinitis which is here probably properly classified is more than 80 for the 80 to 100 per cent relief group. This is about the same that we have been able to obtain in similar cases.

CONCLUSIONS

1. Nasal ionization following the technic elaborated by Warwick, when given after the hay-fever symptoms have started, apparently stops the disease in the majority of patients for the remainder of the season.

2. About 75 per cent of cases of perennial allergic rhinitis are relieved of the symptoms following ionization.

3. The relief in cases of allergic asthma has been much less frequent; but there are still enough good results to warrant further investigation as to the causes of the failure.

4. Clinical observation and microscopic examination of nasal tissues removed from both animals and humans who have been ionized has thus far shown no evidence of permanent nasal damage which could logically be attributed to the treatment.

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BIBLIOGRAPHY

1. Baber, Cresswell: Proc. Laryngol. Soc. London, 5:29 (January) 1898.
2. Fox, Mearle C.: The Postoperative Treatment of the Maxillary Sinus by the Ionizing of Zinc, Northwest Med. 23:82 (February) 1924.
3. Hollender, A. R., and Cottle, M. H.: Recent Advances in the Treatment of Nasal Accessory Sinus Disease, Eye, Ear, Nose & Throat Month. 5:575 (March) 1926; Physical Therapy in Diseases of the Eye, Ear, Nose & Throat, New York, The Macmillan Company, 1926.
4. Harris, M. L.: Zinc Ionization as a Treatment for Intermittent Nasal Obstruction, Arch. Otolaryng. 10:75 (July) 1926.
5. Feldman, Louis: A Rational Treatment of Hypertrophic Rhinitis, New England J. Med. 198:682 (May 17) 1928.
6. Gale Jos.: Zinc Ionization in the Treatment of Intumescent Rhinitis, Arch. Physiol. Therap. 10:486 (November) 1929.
7. Smith, Ferris: Asthma: Its Etiology and Surgical Treatment, Ann. Otol. Rhin. & Laryng. 38:1095 (December) 1929.
8. Cahill, A. J.: Electric Ionization in Oto-Rhinology, Eye, Ear, Nose & Throat Month. 12:59 (March) 1929.
9. McCoy, John: Zinc Ionization of the Ethmoid, Laryngoscope 40:640 (September) 1930.
10. Sputh, Carl B.: Zinc Ionization in the Treatment of Rhinitis and Nasal Accessory Sinusitis, J. Indiana M. A. 24:461 (September) 1931.
11. McCurdy, Gordon J.: Electric Ionization in Otorhinology, Rhode Island M. J. 14:151 (October) 1931.
12. Demetriades, T. D.: Zur Behandlung Der Vasomotorischen Störungen der Nase durch Iontophorese, Archiv. Fur Nasen, Hals und Ohrenheilkunde, Monatschr. f. Ohrenh. 61:524 (May-June) 1927.

13. Franklin, P.: Treatment of Hay-Fever by Intranasal Zinc Ionization, *Brit. M. J.* **367**:1115 (June 27) 1931.
14. Intranasal Treatment by Ionization in Hay-Fever, Vasomotor Rhinitis and Ozena, *Brit. M. J.* **1**:751 (April 23) 1932.
15. Warwick, Harold L.: Treatment of Hay-Fever and Its Allied Conditions by Ionization: Preliminary Report, *Laryngoscope* **44**:173 (March) 1934.
16. Lierle, D. M., and Sage, R. A.: The Underlying Factors in the Zinc Ionization Treatment of Middle Ear Infections, *Ann. Otol. Rhin. & Laryng.* (June) 1932.
17. Hollender, A. R.: Intranasal Zinc Ionization: Its Fundamental Aspects and Clinical Value, *Arch. Physiol. Therap.* (October) 1934.
18. Alexander, H. L., and Alexander, J. H.: Ionization of the Nasal Mucosa: Relation Between Reagents in the Blood and Effect of Treatment, *J. Allergy* (March) 1935.
19. McMahon, B. J.: Effects of Ionization on the Mucosa of Frontal Sinuses of Dogs, *Ann. Otol. Rhin. & Laryng.* (September) 1934.
20. Haseltine, Burton: The Place of Ionization in the Treatment of Hay-Fever, *Clin. Med. & Surg.* (April) 1935.
21. Alden, Arthur M.: A Year's Work With Ionization in the Treatment of Hay-Fever, *Laryngoscope* (September) 1934.
22. Hurlbut, J. A.: Treatment of Hay-Fever by Ionization Method, *Wisconsin M. J.* (February) 1935.
23. Hays, Harold: Ionization of the Nasal Mucosa for Hay-Fever, Hyperesthetic Rhinitis and Certain Types of Asthma, *Med. Rec.* (January) 1935.
24. Tobey, Harold G.: Experiences in Ionization of the Nasal Mucous Membrane, *Ann. Otol. Rhin. & Laryng.* (March) 1935.
25. Bryant, Ben L.: The Warwick Ionization Treatment for Hay-Fever and Hyperesthetic Rhinitis with Report of Cases, *Ohio J. M.* (February) 1935.

DISCUSSION

DR. JAMES H. BUCKLEY, Fort Smith, Arkansas: This paper of Dr. Alden's has been very interesting to me. Last summer a gentleman who lives near Fort Smith, whose wife had been treated in Sparks Hospital, feeling rather grateful for the results obtained, presented to the hospital a Warwick apparatus. His wife was not treated for hay-fever but he wanted to do something for the hospital so gave this apparatus to the hospital. That apparatus is open to the use of all the ear, nose and throat men who live in Fort Smith and are on the staff of Sparks Hospital. Last fall Dr. Smith and myself treated thirteen cases. We think we got perfect results in eight cases and beneficial results in five, so all thirteen cases were benefited. It may be a little too soon to tell whether we will have to repeat some of the treatments; it may be necessary in some cases. We do not expect to get perfect results in every case with this treatment, but I do want to add my testimony in favor of ionization.

DR. W. C. CREEK, Springfield: Just before the hay-fever season last year I started doing this work in Springfield and did eleven cases in all. In one case we got no result whatever from the first treatment. That was given about July 1, before the season started. We repeated the treatment at the height of her discomfort and gave her relief. My results have been best in hay-fever cases, and not so good in watery noses that occur at other times of the year.

There was one case in my town treated by Dr. Warwick last year about the time the hay-fever started. Apparently she got no results whatever and the reaction was so severe that she refused to take the second treatment. It would be interesting to know just what the second treatment would do in her case because she has hay-fever in very severe form.

Dr. Alden has done a lot of this work and the work has been appreciated by the public and has given results. I also wish to give my testimony as to the beneficial results of the treatment and I will continue to use it.

DR. ARTHUR M. ALDEN, closing: I have nothing further to add except to thank the gentlemen for their discussion and to say that I think we are just getting a start on this thing. A lot of things have come up that

I did not talk about because I was afraid to do so. We have done things on a theoretical basis up to the present time—things there is no sense in. But there is only one thing to do, and that is to keep plugging along and study the cases from every possible angle. I hope to have the privilege at a later date of reporting some further observations along this line which I think will be more interesting to you men than what I have presented today.

BRONCHOSCOPY

SOME OBSERVATIONS WITH CASE PRESENTATIONS

JOHN S. KNIGHT, M.D.

KANSAS CITY, MO.

The learned and deservedly loved Chevalier Jackson has often said that peroral endoscopy should not be limited to the region of Philadelphia and other large eastern cities. And the truth of this statement is being generally accepted.

We of the Middle West find there is no hesitation on the part of either the patients or the doctors for prompt handling of cases of foreign bodies in the food and air passages. To the contrary, however, many pathological conditions of the throat, lungs and esophagus are being undiagnosed or untreated. Even though there has been a marked improvement in the attitude of many practitioners and even of the patients themselves in the last few years, it is hoped that by broader knowledge and observation much of the reticence still apparent will disappear.

Bronchoscopy used as a general term will not cure all the cases and will benefit some conditions only slightly. But in the field of diagnosis and the benefiting of certain diseases other measures seem antiquated and insignificant. The object of this paper is the brief presentation of the work done in the last five years and the observations and impressions obtained.

A total of three hundred and eight peroral endoscopic examinations and treatments have been performed. This is subdivided into eighty-five laryngoscopies, one hundred and fifty bronchoscopies and seventy-three esophagoscopies. Foreign body cases total forty-two and a successful termination of all cases has resulted, with one exception, viz.: A small child was brought into the hospital almost in extremis with a large peanut in

From the Otolaryngologic Service of the Kansas City, Missouri, General Hospital.

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Read before the combined meeting of the Jackson County Medical Society and the Kansas City, Missouri, General Hospital staff, December 11, 1934.

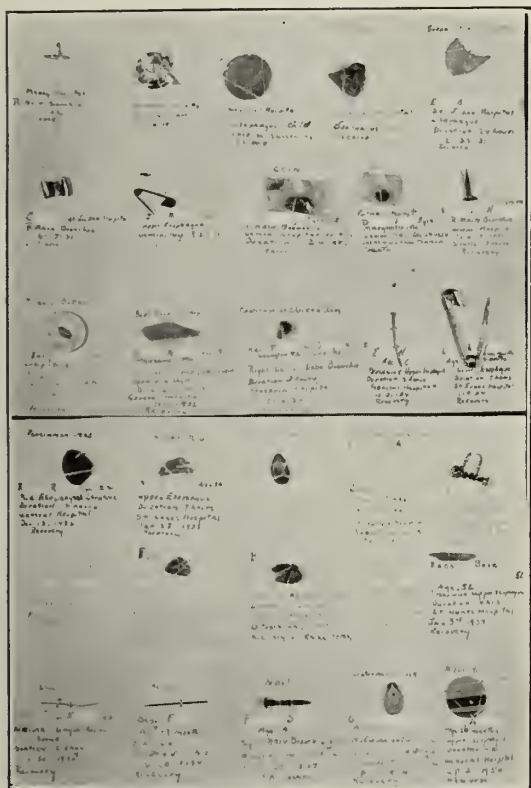


Fig. 1. Some of the foreign bodies that have been removed from the blood and air passages.

the trachea which had been lodged there for over twelve hours. Hasty preparations and an attempt to relieve the respiratory distress were of no avail although a part of the peanut was quickly removed. The tracheal mucosa had become so inflamed and swollen that it practically occluded the tracheal lumen above and below the peanut.

Five cases of supposed foreign bodies in the air and food passages all having suspicious histories have been examined with negative findings. However, all these cases had no complications and have apparently recovered. A chart of the foreign body cases is seen in figure 1.

Among the pathological conditions that have been handled by direct laryngoscopic methods are single and multiple papillomata, vocal cord nodules, traumatic stenoses and webs, intrinsic and extrinsic laryngeal carcinoma for biopsy, retropharyngeal abscesses, tuberculosis and syphilis. Four cases of vocal cord nodules and two of single papilloma have remained clinically cured for three years.

Various forms of chest pathology have been examined and treated. Many of the observations made hereafter have been re-

ported time and again by others far more qualified than myself, but for sake of the record the following conditions will be considered.

BRONCHIECTASIS

Cases of varying degrees of involvement from the comparatively early fusiform or saccular types to the late stages of abscess formation have been encountered. The results that were obtained while not as good as hoped for were at least of temporary improvement. As would be expected, there was a proportionate ratio of the amount of improvement with the degree of lung change. Of particular value was the aspiration of stagnated secretions and the unloading of overworked cilia. Jackson¹ calls this condition the bronchiectatic septic tank. The diagnostic use of iodized oil after aspiration is quite essential.

One patient with an asthmatoïd manifestation has been sufficiently helped on three occasions in the last year and half so that he has been able to continue his work as a policeman with only time off for his treatments. He would become so "choked up with asthma" that he could not work. Within twenty-four hours after aspiration all signs of chest wheezing would be gone.

Often, it is not the actual quantity of aspirated secretions that helps these patients but the increased ability to raise tremendous quantities of mucopus on the following day.

Vinson² of the Mayo Clinic subjects all chronic bronchiectatic cases to at least one bronchoscopic examination for localization of the lesion and to rule out the presence of a neoplasm or a foreign body in the bronchus.

BRONCHOSINUSITIS

This condition may be considered as a form of chronic bronchitis, the etiology being in a chronic sinus infection and the lung becoming the "wet basement." Correction of either the sinus infection or the chest involvement alone often results in partial improvement only. The following case is a good example.

REPORT OF CASE

Case 1, H. R., male, aged 40, had had nose and chest trouble for twelve years. A persistent cough was productive of two or three cupfuls of mucopurulent material a day. In the previous three or four years treatments and nasal operations had cleared up his head condition to a large extent but the bronchial expectoration had persisted. He was underweight, anemic, had curved finger nails and a chronic eczema. Lipiodol pneumonography, after bronchoscopic aspiration of a moderate amount of tenacious mucopurulent material, disclosed no bronchiectatic cavitations. (Fig.

2.) Nine bronchoscopic treatments in the next six months resulted in marked improvement in the cough, type and amount of secretion, a gain of twenty pounds in weight and a disappearance of the eczema. This improvement has lasted three years.

ASTHMA

Various non-allergic forms of asthma have been examined. One patient was found to have a constriction of the right main bronchus. Six dilations at weekly intervals resulted in marked improvement. Another patient with a perennial asthma, etiology unknown, was benefited for a few months by the simple passage of the bronchoscope. No constrictions or other pathology was found. Clerf describes a similar circumstance.

Asthmatoid manifestations associated with bronchiectasis or chronic bronchitis are not uncommon and can be helped to a certain degree. Unloading of the overworked cilia by aspiration of the tenacious secretions probably accounts for a great deal of the improvement. Jackson,³ Lukens,⁴ Moore,⁵ Roberts⁶ and others have thoroughly discussed this subject.

Chronic severe asthma, so well described by Rackeman,⁷ is a most serious and pathetic disease. A case of this type is reported.



Fig. 2. Broncho-sinusitis. Note the excellent outlining of the tracheo-bronchial tree with the exception of the right lower lobe. Here there is "clu-ending" of the iodized oil in the smaller bronchioles. This patient expectorated large quantities of mucopurulent material.

REPORT OF CASE

Case 2, J. F., male, aged 40. Asthma first started in 1927 and had progressively gotten worse for the next four years. At the time he was first seen he was a very sick man and his referring doctor felt that he had but a short time to live. He required from twelve to fourteen hypodermics of adrenalin and an occasional injection of morphine for each twenty-four hours. Various nose operations, climates, clinics and doctors had been tried. Bronchoscopic examination disclosed a chronic tracheobronchitis with mucosal thickening and a very tenacious mucopus. It seemed that as soon as the bronchoscope was passed to the lower portion of either main bronchus the breathing would become easier. In the following twenty-four hours the patient would expectorate a large amount of the sticky mucopus and he would be improved for a variable length of time. After his first three aspirations and "dilations" he was untreated for six months during which time he gained thirty pounds in weight and required only an occasional hypodermic of adrenalin. However, the asthmatic severity returned and it required eight treatments in the next year to enable the patient to do about half-time work. A year and a half ago he was transferred to San Francisco and strange to say he has remained fairly free from any severe asthma although there remains some difficulty in breathing. The bronchoscope did not cure this man but it at least kept him alive and for a time made him quite healthy.

CANCER OF THE LUNG

Six cases of primary lung carcinoma have been examined through the bronchoscope. Two of these cases were examined at the request of the chest surgeon who wished to know if there was any obvious extension up the tracheobronchial tree. Later, operations by the thoracic surgeon were performed, unfortunately with sad results, although the surgeon had apparently been able to remove all of the malignant growth. All these cases presented fixation and deviation of the trachea with compression of a main bronchus. No neoplastic tissue for biopsy was seen. Deep roentgen ray therapy was of no value in two of these cases.

Kernan and Cracovaner⁸ treated an endobronchial carcinoma for fifteen months by surgical diathermy and implantation of radium seeds before they considered the condition corrected. The patient had remained living and well for a year longer when the case was reported.

Chevalier Jackson⁹ has removed a histologically malignant endothelioma of a bronchus which has remained well for over six years.

It seems plausible to think that more of these cases will respond satisfactorily if early diagnoses and the proper procedures are instituted.

The summary of an interesting case in which a positive biopsy was obtained from

the bronchus of a patient with a metastatic carcinomatosis of the lung, is reported:

REPORT OF CASE

Case 3, McF., male, aged 48. Since December, 1930, two months previous to admission to the hospital, he had been bothered with a pain in the back, cough and weakness. At the time of admission a mass was noticed on the right breast. Considerable weight had been lost. Biopsy taken from the mass involving the fourth rib on the right side was diagnosed carcinoma simplex, origin unknown. Likewise, a biopsy made through the bronchoscope of a fungating obstructing growth of the left main bronchus showed a similar structure. Roentgen ray examination had previously disclosed the left lung obscured by a homogeneous shadow. The mediastinum was displaced to the left and irregular defects of various bones were noted. Autopsy findings were a hypernephroma of the right kidney with metastases to the bones, pancreas, liver and lungs.

Vinson and Martin¹⁰ in 1931 report a similar case of hypernephroma with positive biopsy findings from a bronchial metastasis. However, in their case, the bronchoscopic biopsy was taken two years after the surgical removal of the hypernephroma. They considered the findings of an extension of this type of tumor into the lumen of a bronchus to be sufficiently rare to warrant a report in the literature.

LUNG ABSCESS

Considering the various forms of chronic chest suppuration that one encounters the results obtained will be variable. The value of the comparatively easy partial or complete drainage of a suppurating area by bronchoscopic aspiration is proportionate to the underlying pathology and the location. One patient with a large bronchiectatic abscess superimposed upon the diaphragm was helped to a certain extent by a series of treatments. It was apparent that further results could not be obtained without surgical intervention. A lobectomy was recommended and refused. The patient died four months later from pneumonia. (Case 4, fig. 3.)

Another patient with a double pocketed abscess following empyema showed very definitely on pneumonography that the condition could only be handled by an external operation. This patient was operated upon with a very successful result.

Several post-tonsillectomic or post-alcoholic acute abscesses have responded very quickly to bronchoscopic aid. Medical treatment and observation have proved quite satisfactory in other similar cases.

As has been stated by Chevalier Jackson,¹¹ sharply defined classifications of these conditions are unsatisfactory. The bronchoscopist should always be in the consultation

of the internist, the surgeon and the roentgenologist. They should decide the best plan of procedure in the individual case.

ACUTE INFECTIVE LARYNGOTRACHEITIS

For the most part, the measures of intubation, tracheotomy, or bronchoscopy are of need only in the very severe cases. Yet all patients with any respiratory difficulty should be in a position for the emergency use of these measures. The use of the laryngoscope is of particular value for the differential diagnosis of laryngeal diphtheria and the subglottic edema of acute infective laryngotracheitis.

In many cases of this disease in small children the bronchoscope can be passed more quickly and safely than even the doing of a tracheotomy. In addition, aspiration of the tenacious secretions may be done under direct vision.

REPORT OF CASE

Case 5, J. H., male, aged 2. Acute streptococcic infection with marked edema of the glottis and subglottic tissues. The child was blue, even with an oxygen tube at its mouth. A 4 mm. bronchoscope was quickly inserted with immediate relief of the respiratory difficulty. A low tracheotomy was leisurely done, withdrawing the bronchoscope as the tracheotomy tube was placed in the tracheal opening. Convalescence was rapid and recovery complete.

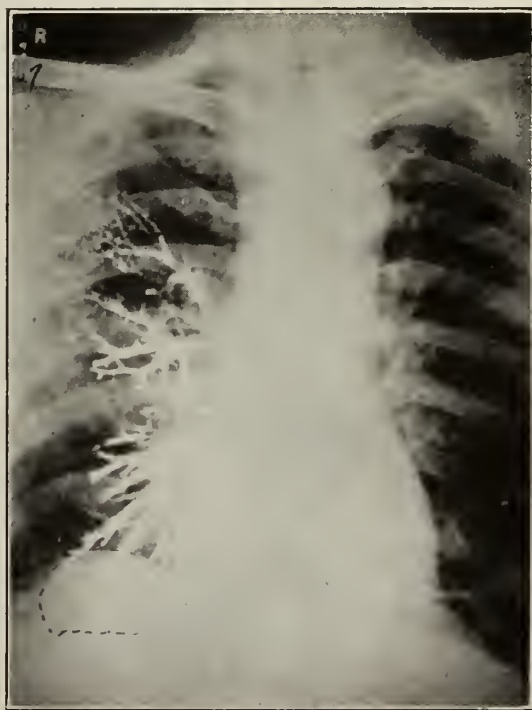


Fig. 3. Case 4. This bronchiectatic abscess was superimposed on the diaphragm. A lobectomy was indicated as the remaining lung structures were healthy. Bronchoscopic drainage gave temporary relief.

A similar case, four years of age, responded equally well. It is true that a tracheotomy alone might have been done as a life-saving measure, but the use of the bronchoscope completely eliminated the need for hasty and possibly inefficient work and took an undue strain off the hearts of both the patient and the surgeon. Other patients have been tracheotomized successfully but none have been so near to exitus from asphyxia as these two.

ULCER OF THE TRACHEAL CARINA

No reference to this particular type of involvement has been encountered in the literature. A case is reported here.

REPORT OF CASE

Case 6, Mrs. A. R., aged 60. Chief complaint was cough. Even as a child she remembers many sore throats and attacks of bronchitis. Tonsils were clipped twenty-two years ago and enucleation was done seven years ago. The latter eliminated the sore throat occurrences but failed to help the bronchitis attacks. For the last twelve years she has had a chronic non-productive cough. Acute exacerbations associated with head colds would result in an increase of the cough to four or five hundred times a day. Every form of cough medicine and intratracheal medication had been tried but apparently the exacerbation would require three or four weeks to subside. Being otherwise healthy she felt that she was a public annoyance during these attacks and accordingly would confine herself to her room. Changes of climate had failed to be of any material value. In September, 1931, while in an exacerbation that had lasted a month, a bronchoscopic examination was suggested. She agreed but insisted that a general anesthetic be given. Bronchoscopy disclosed a chronic inflammation of the trachea, a so-called tracheitis sicca, with no excessive secretion and a small slightly indurated ulcer that involved the anterior third of the tracheal bifurcation. The ulcer was touched with 25 per cent silver nitrate and the chronic tracheitis treated with 10 per cent silver nitrate. Sudden cessation of all irritative cough resulted almost immediately after her recovery from the ether anesthetic. Three and a half years have elapsed since the single bronchoscopy and there has been no abnormal coughing. There has been no necessity for any medication or treatment and the patient has resumed all normal contacts and activities. The voice quality has also improved.

One other case of carinal ulcer was encountered in the examination of a patient with carcinoma of the left upper lobe. He also had a tremendous amount of coughing and continued to cough until his death.

Just why the first patient has gotten such a striking result is a little difficult to understand. Of course, we consider the carina to be the site of our most sensitive cough reflex. There is not the slightest evidence of a neurosis. Wassermann and the sputum tests were negative. This case well illustrates the advisability of doing a broncho-

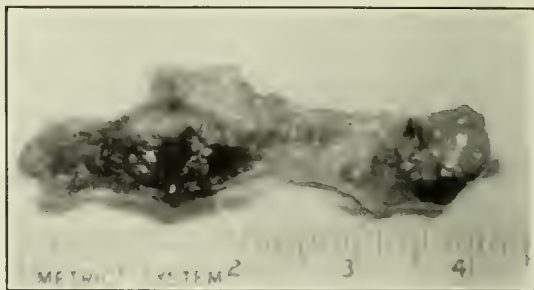


Fig. 4. Case 7. An obstructing mucus plug that was removed from the left main bronchus of a patient with similar findings to case 8.

scopy on cases that require further study or that have failed to respond to the ordinary forms of treatment.

ATELECTASIS

Below are the summarized reports of two cases of massive collapse of the lung.

REPORT OF CASES

Case 7, J. M., male, aged 37. On May 13, 1930, five days before admission to the hospital, the patient was suddenly stricken with a chill followed by a fever and prostration. The first few days after admission his temperature ranged between 100 and 102 degrees. There was decreased expansion, dullness and absence of breath sounds over the right chest. There was some cough and expectoration of rusty sputum. The patient failed to improve as expected and a roentgenogram taken fifteen days after his chill disclosed a



Fig. 5. Case 8. Atelectasis. Note the homogeneous density of the left chest, narrowed interspaces, and the shifting of the mediastinal shadows to the left.



Fig. 6. Case 8. Atelectasis, same patient as figure 5. Roentgenogram taken shortly after removal of the obstructing mucus plug and injection of the iodized oil. Note that the smaller bronchioles are patulous and that the alveoli show no filling.

massive collapse of the right chest. Bronchoscopic examination twenty-four days after the chill showed a normal trachea and left main bronchus although there was a lateral displacement to the right side. The right main bronchus was blocked by a dark-brownish mucus plug. Sponging and aspirating this area brought out a long pencil-shaped plug of tenacious yellow mucus, about two centimeters in length. (Fig. 4). Then the bronchoscope was easily passed

down the right main bronchus and a blast of respiratory air was noted through the bronchoscope. Slight inflammation and very little mucoid secretion were found beyond the mucous plug. The patient's recovery following this bronchoscopy was very quick and he was able to leave the hospital in a few days.

Case 8, F. H., female, aged 40. On January 7, 1931, four days before admission to the hospital, the patient was suddenly seized with a pain in the left lower chest. Almost immediately this was followed by difficulty in breathing, a chill and fever. She became progressively worse and expectorated large quantities of yellow and red flecked sputum. Her admittance temperature was 102, pulse 120, respiration 44 and the leukocyte count 25,000. The patient appeared to be quite sick and was cyanotic part of the time. There was decreased expansion, dullness and absence of breath sounds of the left chest. The general condition improved somewhat in the next week. Roentgenogram on the third hospital day showed a homogeneous density of the left chest, displacement of the mediastinal shadow to the left, narrowed interspaces and elevated diaphragm of the left chest. The diagnosis was pneumonia and even a futile paracentesis was done thirteen days after the chill. A second roentgenogram was taken two days later and the diagnosis was made of atelectasis. (Fig. 5.) Bronchoscopic consultation was asked for one week later. The time elapsed since her chill was twenty-one days and the left chest was still dull and expansion absent. Under local anesthesia a 7 mm. Jackson bronchoscope was inserted into the trachea which showed slight inflammation. The left main bronchus was completely filled with a dark brownish gelatinous material which was aspirated through the suction tube. Immediately, the left chest began to move to a limited degree on respiration and an expiratory blast was felt through the bronchoscope. Very little inflammation was present and except for the mucus plug no excessive secretion was present. In view of the current discussion at that time concerning the etiology of pneumonia and atelectasis, I wished to ascertain the patency of the smaller bronchioles be-

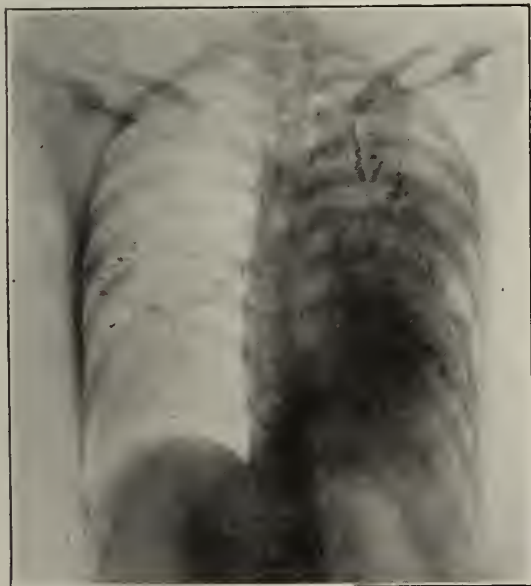


Fig. 7. Case 8. Atelectasis, same patient as figure 6, one day later. The bronchioles are lengthening out and the left lung is beginning to reexpand.



Fig. 8. Case 8. Atelectasis, same patient as figure 7, three weeks later. The massive collapse has disappeared. Some residual oil is present in the right chest. This patient made a complete recovery.

yond a bronchial plug. Accordingly, I injected 20 cc. of lipiodol into the left main bronchus, turned the patient on her left side, and referred her for a roentgenogram. (Fig. 6.) The findings of the outlined bronchial tree were very interesting, especially as the collapse gradually disappeared. Pictures taken the following day (Fig. 7) and at weekly intervals (Fig. 8) disclosed the slow but gradual reexpansion. Undoubtedly, this would have been accelerated if the iodized oil had not been injected. But we were able to prove that the bronchioles beyond the plug were patent and the alveoli were collapsed.

From a pathological standpoint this is diametrically opposite to the findings in a true pneumonia. Of course, pneumonic consolidation might have set in before or after the removal of the obstructing plug, but here are two cases with an involvement time of more than three weeks that have shown no consolidation. I have examined a patient with pneumonia through the bronchoscope. Findings were marked inflammation with excessive mucopurulent secretion and no apparent complete blocking of larger bronchioles. Aspiration of the secretion was of no great value.

Several other cases of massive collapse have been seen in consultation with the surgeon or the internist which were not examined through the bronchoscope. These cases proceeded to expectorate a bloody mucus plug in the first seven to ten days of the involvement and their recovery was rapid and complete. Postural aid, carbon dioxide inhalations, expectorants and steam inhalations might have been of some value.

Gray¹² of the Mayo Clinic in a discussion of postoperative atelectasis stated that others believe the hypothesis for collapse had to a certain extent been the result of diaphragmatic immobilization. Jackson and Lee¹³ concur but maintain that obstruction alone may cause atelectasis. Bronchoscopic aspiration is indicated if there is evidence of failure of other methods of treatment, according to Gray.

Corrylos and Birnbaum,¹⁴ in an excellent work on this subject, believe that atelectasis is a result of bronchial or bronchiolar obstruction. Clinical and experimental evidence points definitely to this conclusion. Furthermore, they state that lobar pneumonia represents an acute infectious atelectasis in which the more virulent pneumococci are present in the course of a pneumococcal bronchitis. Abscess and gangrene of the lung are similar infectious forms of septic bronchial obstruction, according to these ideas.

Apparently, the two cases that are presented above did not have a sufficiently

virulent infection to become involved as a true pneumonia. Yet these patients were quite sick at the onset. My experience in the subject of pneumonia versus atelectasis has not been large. I am not ready to commit myself, especially on the early bronchoscopic treatment of true pneumonia, without further experience. Always, I will visualize the comparatively normal findings seen beyond the mucus plugs of these two cases where the lung had been collapsed for over three weeks and wonder if the two conditions are so closely related as is claimed.

Too often, massive collapse is erroneously diagnosed pneumonia. The two can be easily confused, especially from the clinical standpoint. Roentgen ray findings and "failure to resolve" may be the leads that will result eventually in a bronchoscopic examination. Unnecessary and unwise delay in recommending this procedure often may be the case.

CARCINOMA OF THE ESOPHAGUS

Fifteen cases of this disastrous disease, proved by biopsy, operation or autopsy, have been examined. Ages of these patients fell between fifty-two and sixty-three years. Histories often were identical. The gradual increased difficulty in swallowing varied from one and a half months to ten months. Most of the patients were not seen for esophagoscopy until there was complete or almost complete obstruction. A loss of from thirty to forty-five pounds in weight had occurred in every case. Most of the patients had consulted doctors in the earlier stages of their difficulty. For the most part, they had been told that they were suffering from stomach trouble or cardiospasm and were given everything from soda to atropine. In no case had there been reported any expectoration or vomiting of bright blood. One patient's chief complaint was referable to his chest and it was found that he had multiple lung abscesses secondary to a tracheo-esophageal fistula. In all of the cases, typical esophagoscopy findings of lumen obstruction, board-like resistance and fixation were present. The obstruction was in the form of a puckering with either free bleeding granulations or intact mucosal surface. Positive biopsies were obtained in most of the patients that were examined.

Radium, in the form of a capsule, was used in the dilated lumen of two of these cases. One of these patients developed a tracheo-esophageal fistula one month later. It was never decided whether the radium was the direct cause. On autopsy both of these pa-

tients showed less ulceration and granulation in the region juxtaposed to the radium capsule exposure. But, otherwise, there was no effect on the malignant process. Implantation of radon seeds might prove more satisfactory.

Gastrostomies were performed on all except one patient, who refused operation. It is unfair to the patient and the surgeon to delay this operation to the bitter end. Dilatation and deep roentgen therapy proved of little value. Death has taken its toll of all patients. Three cases of carcinoma of the cardiac portion of the stomach have been diagnosed by gastroscopy.

Chevalier Jackson¹⁵ has made a plea for early diagnosis. He believes that some cases may be saved if an early diagnosis is made. This early diagnosis may be accomplished by only two methods; namely, (1) roentgen ray examination and (2) esophagoscopy.

G. Turner¹⁶ describes a successful operative case. Briefly outlined, his operation consists of four steps after a preliminary gastrostomy and liver exploration, viz.: (1) The abdomen is reopened, the left lobe of the liver is detached from the diaphragm, and enucleation of the esophagus is commenced by the forefinger introduced through the hiatus and worked up as far as possible around the tube. (2) A transverse incision is made above the clavicle, dividing the sternocleidomastoid muscle. The cervical portion of the esophagus is exposed by blunt dissection. The esophagus is then ligated and divided as low down as possible, but at least two inches above the growth. (3) A return is made to the abdomen, the traction is exerted on the esophagus, freeing it from its bed and ligating it at the cardia. (4) The open esophageal tunnel is closed by suturing the left lobe of the liver over its mouth and the abdomen is closed. Later a neo-esophagus was fashioned from a skin tube over the front of the chest and a loop of jejunum connecting this tube with the stomach.

CICATRICAL STENOSIS OF THE ESOPHAGUS

The nonmalignant forms of esophageal stenosis have been encountered in its various phases. Cicatricial stenoses following the ingestion of caustic alkalis have been complicated by the impaction of a foreign body at a later date. Satisfactory dilations following the foreign body removal have resulted in considerable comfort and happiness to the patient.

Almost every patient with a lye stricture gives a history of ingestion that dates back

fifteen years or more. This is commendatory to those crusaders in the field of public education and the proper labeling of all caustics and strong acids.

Cardiospasm is still a not uncommon diagnosis by internists. Two cases stand out strongly in my memory concerning this subject. The first case proved to be a web and diverticulum and the second was a cancer of the lower esophagus.

While there is a possibility for such a diagnosis as cardiospasm, I heartily agree with Chevalier Jackson¹⁷ that this condition is not a true spasm, nor is it usually at the cardia. Accordingly, Jackson names this condition preventriculosis. Mosher¹⁸ calls it "fibrosis of the terminal portion of the esophagus." Very often some other lesion is present and a gastro-intestinal or esophagoscopy study may prove such to be the case.

The following case illustrates the serious degree toward which a condition of this sort may progress.

REPORT OF CASE

Case 9, Mrs. A. McG., aged 28, gave a history of twenty years of difficulty in swallowing. She had progressively become worse and for the last ten years had confined her diet to liquids entirely. In the last month, she had had great difficulty in swallowing liquids, had lost nineteen pounds in weight and lived in constant fear of choking. Fluoroscopic studies disclosed a tremendous reservoir dilatation (3 qts.) of the lower esophagus and an almost complete obstruction to the passage of barium into the stomach. (Fig. 9.) Two weeks of swallowing efforts by the patient failed to get a string through the narrowing. In three esophagoscopy examinations we were unable to find the opening. In the course of these studies a biopsy was taken from the lower portion of the sacculum and was found to be keratinized esophageal mucosa. It was suspected that we might be dealing with a herniated gastric lesion but such did not prove to be the case. Gastrostomy was then performed and after two weeks' delay, endoscopic localization of the cardiac opening was done through the gastrostomy wound and a soft-nosed Jackson esophageal bougie and attached string was passed upward into the dilatation and the string was recovered from above. A course of gradual dilatations with Tucker's retrograde bougies and dilator has resulted in a clinical cure. For the past year this patient has been able to eat anything that she wished and has gained forty-six pounds in weight. Fluoroscopic studies now disclose about one fourth of the original dilatation and a prompt entering of the barium into the stomach.

Chevalier Lawrence Jackson's¹⁹ report of a patient with esophageal stenosis following the healing of a peptic ulcer of the esophagus is of particular interest. Two years ago a female patient, aged 45, came to the hospital stating that she had a chicken bone caught in her throat. Esophagoscopy removal of a large mass of chicken meat disclosed a stricture of the lower end of the esophagus.

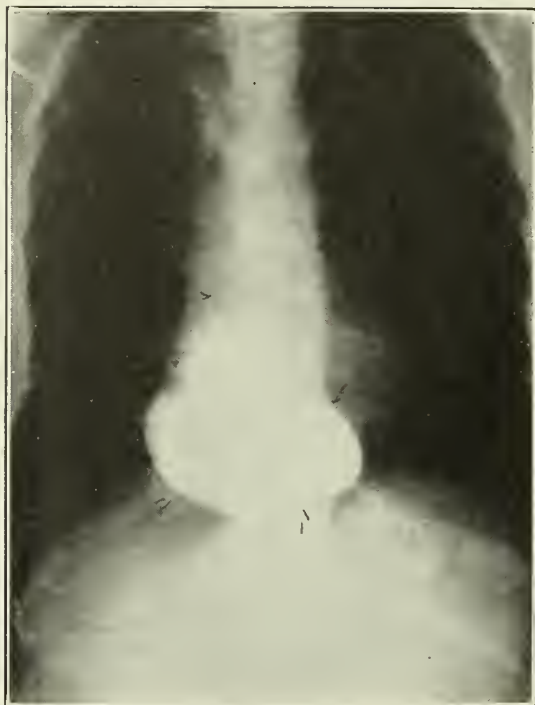


Fig. 9. Case 9. Preventriculosis. Note the large sac or dilatation filled with barium and the almost complete occlusion of the lower end of the esophagus. This condition has been called cardiospasm.

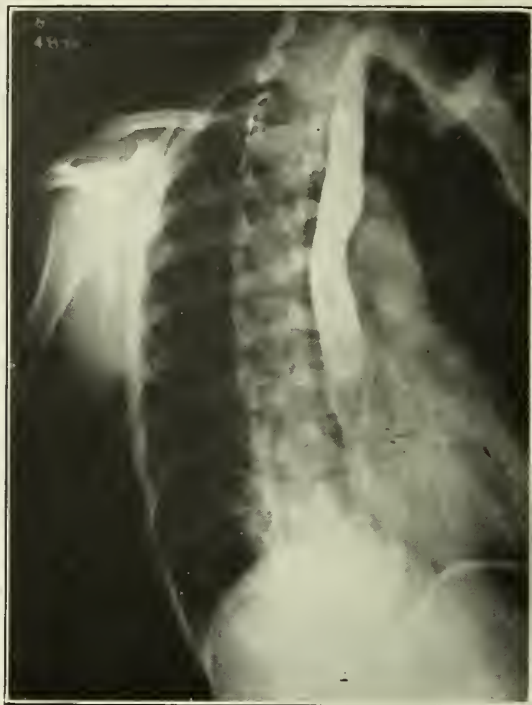


Fig. 10. Esophageal stricture and sacculation from lye. Note how easy it would be to pass a blind bougie through the thin wall of this sac into the mediastinum. These strictures should be dilated under direct vision.

The cicatrix for the most part involved the left lateral portion of the esophageal narrowing. Dilation was accomplished with good results. History was negative for ingestion of any caustics but she did state that she had had indigestion for several years. On reviewing this case it is very likely that a healed peptic ulcer was the direct cause of the esophageal stenosis.

Blind bouginage is still practiced. Possibilities for esophageal tragedies, so well described by Mosher, is ever in mind. One might easily pass a blind bougie through a bend, twist or dilated sacculation into the mediastinum. (Fig. 10.) With facilities for examination and dilation under direct vision in every city it is sometimes unfortunate that they are not used more often.

CONCLUSIONS

1. Peroral endoscopy is a large field with no geographic limitations.

2. It is granted that the peroral removal of foreign bodies in the food and air passages by endoscopic means supercedes all other measures.

3. Since the large majority of peroral endoscopies that are now performed are for pathological conditions not associated with foreign bodies it behooves all concerned to

become more familiar with the indications and merits of this comparatively new field.

4. The science and practice of medicine will be enhanced by the joint conferring of the internist, the surgeon, the roentgenologist and the endoscopist.

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I wish to express my grateful appreciation to Dr. Sam Roberts, Dr. Hal Foster, Dr. J. L. Myers, Dr. Morris Simpson, Dr. E. H. Skinner, Dr. David Dann, Dr. A. C. Clasen, Dr. D. A. Williams, Dr. W. W. Buckingham and Dr. Irvin S. Brown, and the staff members of the Kansas City, Missouri, General Hospital, where the majority of this work has been performed.

BIBLIOGRAPHY

1. Jackson, Chevalier, and Jackson, Chevalier L.: *Bronchoscopy, Esophagoscopy and Gastroscopy*, Philadelphia, Saunders and Co., 1934.
2. Vinson, P. P.: *Proceedings of the Staff Meetings of the Mayo Clinic*, 1932.
3. Jackson, Chevalier, and Coates, George M.: *The Nose, Throat and Ear*, Philadelphia, Saunders and Co., 1929.
4. Lukens, Robert M.: *Bronchoscopy in the Treatment of Asthma*, *Laryngoscope* **35**:227 (March) 1925.
5. Moore, W. F.: *Ciliary Inhibition or Destruction in Tracheo-Bronchial Asthma*, *Am. J. M. Sc.* **169**:799 (June) 1925.
6. Roberts, Sam E.: *Bronchoscopic Treatment of Certain Pulmonary Diseases*, *Bull. K. C. Southwest Clinical Soc.* **7**:26, 1931.
7. Rackeman, Francis M.: *Chronic Severe Asthma*, *J. A. M. A.*, **99**:3 (July 16) 1932.
8. Kernan, J. D., and Cracovaner, A. J.: *Carcinoma of the Lung*, *Arch. Surg.* **18**:315, 1929.
9. Jackson, Chevalier: *Endothelioma of Right Main Bronchus, Removed by Peroral Endoscopy*, *Am. J. M. Sc.* **152**:371 (March) 1917.
10. Vinson, P. P., and Martin, Wm. J. Jr.: *Pulmonary Metastasis from Hypernephroma Diagnosed by Bronchoscopy*, *Arch. Otolaryng.* p. 368 (March) 1932.
11. Jackson, Chevalier: *Bronchoscopy and Esophagoscopy*, Philadelphia, Saunders and Co., 1927.

12. Gray, H. K.: Proceedings of Staff Meetings of the Mayo Clinic, (Feb. 17) 1932.
13. Jackson, Chevalier, and Lee, Walter E.: Acute Massive Collapse of the Lung, *Am. J. Surg.* **82**:364 (September) 1925.
14. Corrylos, P. N., and Birnbaum, G. L.: Obstructive Massive Atelectasis of the Lung, *Arch. Surg.* **16**:501, 1928; Lobar Pneumonia Considered as a Pneumococcal Massive Atelectasis of the Lung: Bronchoscopic Investigation, *Bull. New York Acad. Med.* **4**:384, 1928; Lobar Pneumonia Considered as a Pneumococcal Lobar Atelectasis of the Lung, *Arch. Surg.* **18**:190, 1929; Studies in Pulmonary Gas Absorption in Bronchial Obstruction, *Am. J. M. Sc.* **183**:317, 1932.
15. Jackson, Chevalier: Carcinoma and Sarcoma of the Esophagus, *Am. J. M. Sc.* **169**:625 (May) 1925.
16. Turner, G.: Recent Advances in the Treatment of Carcinoma of the Oesophagus from the Surgical Standpoint, *J. Laryng. & Otol.* **49**:297 (May) 1934.
17. Jackson, Chevalier, and Jackson, Chevalier L.: Bronchoscopy, Esophagoscopy and Gastrosocopy, Philadelphia, Saunders and Co., 1934.
18. Mosher, Harris P.: The Nose, Throat and Ear, Jackson and Coates, Philadelphia, Saunders and Co., p. 1048, 1929.
19. Jackson, Chevalier L.: Esophageal Stenosis Associated with Ulcer of the Stomach and Duodenum, *Tr. Am. Ther. Soc.*, p. 143-148, 1932.
20. Jackson, Chevalier L.: Treatment of Esophageal Disease, *Tr. Am. Ther. Soc.*, p. 181-189, 1931.
21. Lee, W. E.; Tucker, G.; Ravdin, I. S., and Pendergrass, E.: Experimental Atelectasis, *Arch. Surg.* **18**:242, 1929.
22. Jackson, Chevalier: Bronchoscopy as an Aid to the Thoracic Surgeon, *J. A. M. A.* **84**:97 (January) 1925.
23. Meyer, W.: Primary Carcinoma of the Lung, *Arch. Surg.* **18**:307, 1929.
24. Clerf, Louis H.: Peroral Endoscopy, *Arch. Otolaryng.* **15**:445, (March) 1932.
25. Bowers, Chester: Obstruction of the Bronchus, *Laryngoscope*, **119** (February) 1925.
26. Tucker, Gahriel: Strictures of the Esophagus, Diagnosis and Treatment, *Laryngoscope* (June) 1931.

GAS GANGRENE

A CLINICAL STUDY OF THE WELCH BACILLUS (CLOSTRIDIUM WELCHII)

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Reasons for presenting the subject are: (1) The seriousness of gas bacillus infections; (2) the recent opportunity to study a typical case developing despite early administration of prophylactic antitoxin, and (3) recent advances in diagnosis and treatment.

The causative organisms of gas gangrene masquerade under many disguises of which the most common are, bacillus aerogenes capsulatus Welchii, bacillus edematis maligni, bacillus perfringens and vibrio septique. During the war the German surgeons referred to Frankel's bacillus; however, since the war they gallantly speak of Welch-Frankel's bacillus. All are anaerobic, gas producing, spore forming, gram amophil rods which produce an emphysematous gangrene in man and animals. They live in symbiosis with colon bacillus, streptococcus, staphylococcus and tetanus bacillus. Thirteen per cent of war cases studied by Weinberg and Seguin showed combined infections of tetanus and gas bacilli. A host of strains of varying virulence has been isolated.

The mortality from gas bacillus infection was estimated (1917) by Zindel to be from 12 to 50 per cent in military practice but from 70 to 90 per cent in civil practice. Loehr quotes the Medical Research Committee as having placed the mortality at from 20 to 50 per cent for the Allies and from 30 to 60 per cent for the Central Powers. Manson, after an exhaustive study, stated (1932) that the average mortality in American civil practice was probably 40 per cent. Orr (1934) reports twenty-one cases collected from American literature following amputation through non-traumatized tissue in which the primary gangrene was due to circulatory insufficiency. The mortality in this series was 71 per cent.

The sudden unsuspected onset of gas gangrene and the rapid demise of the patient stricken are as dramatic and fearsome as any in surgical experience. The onset usually occurs within forty-eight hours after severe muscle trauma or deep puncture wounds, and a five-hour incubation period has been recorded in one case, the patient dying within eighteen hours.

Within ten to thirty hours after an injury such as severe laceration, compound fracture or puncture wound, the temperature and pulse rise sharply and the patient complains bitterly of wound pain. There is headache, malaise, anorexia and thirst. He may or may not be prostrate and the symptoms may be misleadingly slight. The skin about the wound site should be inspected and may have a dull metallic luster. A thin sero-sanguinous exudate with a characteristic odor and containing bubbles may be expressed. Palpation of nearby muscles may reveal crepitus which could, if other signs are absent, be mistaken for air introduced at the time of injury. With the progressive evolution of gas, however, crepitus is quite evident, the extremity bloated and brown, and the gas may even be heard hissing as it finds exit, as was true in the case I shall report. Coma, a pulse disproportionately high to the fever and delirium mark the end which is often sudden.

In order to diagnose this early one must be on the lookout for the signs above mentioned and take cultures from all suspect wounds. Roentgenograms often show the gas layers following up the fascial planes before crepitus can be determined. But the use of milk cultures for the bacillus gives us the information within four to eight hours. Bubble formation and stormy fermentation

within eight hours is produced only by the Welch bacillus (Manson), and the test is quicker than the customary dextrose agar culture. It is also much simpler. Plain whole milk is boiled and placed in a sterile test tube. This is then inoculated with a sterile swab which has been dipped in the wound. It is placed in the incubator and observed every two hours, as bubble formation oftentimes occurs within an hour or two and time is valuable. The formation of bubbles within eight hours means the presence of Welch bacilli. Smears are often equivocal and this rapid culture method should be more widely used.

The treatment is most effective when active surgical measures are combined with serum therapy. Individuals with suspect wounds should receive gas and tetanus antitoxin, but that one may not feel safe even then is indicated by the following case:

REPORT OF CASE

October 11, 1934, R. A. M., robust man, aged 38, admitted in shock with compound comminuted fractures of radius and ulna at the left elbow and wrist with protrusion of bone, compound fracture of tibia and fibula at right ankle, and a laceration over the right eye. The left cubital space was heavily traumatized and a tourniquet had been applied. The radial artery was damaged beyond repair, but it was thought the arm might be saved so debridement was carried out. The extent of collateral circulation could not be determined. Fluids, stimulants and heat were applied to combat shock. The pallor was marked, the pulse rapid and thin. The leg was dressed and placed in a splint. The scalp was sutured. Acetone-alcohol-mercurochrome was applied freely to all wounds. Thirty-five hundred units gas tetanus antitoxin were given intramuscularly as a prophylactic and the patient placed in a quiet room where antishock measures were continued as the blood loss had been severe. The pulse remained imperceptible at both wrists for several hours despite almost continuous intravenous administration of fluids.

Two transfusions were given totalling 1000 cc. of citrated blood. His general condition improved somewhat Oct. 12, 1934, but in the evening the temperature rose to 104 degrees F. and he became delirious. This was interpreted as reaction to the various intravenous infusions but the arm was examined and faint crepitus elicited. It was thought the air introduced at the time of injury might easily account for it. The nurse reported that later that night she heard "a hissing noise,"—gas escaping from the dressing. Amputation was done below the shoulder and no attempt was made to approximate the flaps as crepitus was present in the deltoid and pectoral muscles. Several thousand units of gas antitoxin were injected directly into the muscles of the stump in which gas was observed. Twenty thousand units of antitoxin were given on October 14, and 20,000 more on October 15, and 20,000 on October 16. A total of 74,000 units was given. Following the amputation the patient responded feebly but within four days was definitely improved.

Milk cultures taken at amputation were positive and $\frac{1}{2}$ cc. of a saline suspension of the material killed a guinea pig within eighteen hours. The pig was injected intramuscularly at the thigh and at autopsy, besides the local lesion, blebs were observed in his abdominal wall. Culture from the pig's liver yielded *stormy fermentation in milk within forty-five minutes*. Glucose agar simultaneously inoculated did not show gas fermentation for four hours which demonstrates the quicker response of plain boiled milk. The expansile character of the gas is indicated by the behavior of the liver left in the incubator at 37 degrees C. Within four hours it had assumed twice the original size and continued to bubble vigorously. (Hence the term "foamy liver" as used by Welch.) Stained smears showed numerous large gram positive rods encircled by pale capsules. Methylene blue brought out the capsule more clearly than the gram stain.

Blood counts taken during the onset and progression of the disease indicate the hemolysis previously mentioned.

| Date | Hgb. | RBC. | |
|---------------|-------------------|-----------|--|
| Oct. 11, 1934 | Admitted in shock | | 3500 units gas tetanus antitoxin. |
| Oct. 12, 1934 | 53% | 2,130,000 | Transfusion 1000 cc. blood. Onset of gas bacillus infection. |
| Oct. 13, 1934 | | | Amputation (very little blood lost). Serum therapy. |
| Oct. 14, 1934 | | | Serum therapy. Improvement slight. High fever. Gas present in pectorals. |
| Oct. 15, 1934 | | | Serum therapy. |
| Oct. 16, 1934 | | | Serum therapy. |
| Oct. 20, 1934 | 36% | 2,880,000 | |
| Oct. 24, 1934 | 36% | 3,000,000 | Definite improvement. Stump clear. Wound healing. |
| Oct. 29, 1934 | 47% | 3,550,000 | Up in chair. |
| Nov. 9, 1934 | 51% | | Discharged from hospital. |
| Dec. 6, 1934 | | | Stump healed. Ambulant. |

The flaps and stump were washed out carefully twice daily with hydrogen peroxide and a moist dressing of dichloramin-T applied. Healing has been most satisfactory and the wound margins have approximated under adhesive traction. It is interesting to note that the laceration above the right eye and the right ankle wound at no time showed any evidence of gas bacillus infection.

A delayed serum reaction manifested itself as numerous large urticarial wheals. A much more severe reaction occurred in a nurse who cut her finger on a proctoclysis tube and received 3500 units antitoxin. About six days following the injection she exhibited wheals, painful joints, nausea and headache and a very annoying swelling about the face. Adrenalin, neosynephrin, ephedrin and magnesium sulphate catharsis controlled the symptoms to some extent. She should be very cautiously desensitized if she ever needs serum again.

DISCUSSION AND SUMMARY

The ubiquity of the organism has received considerable attention lately in the literature. Melville Manson (1932) found pathogenic gas producing anaerobes in 37 per cent of chronic varicose ulcers. T. G. Orr (1933) collected twenty-one cases of gas gangrene developing in patients operated upon for non-traumatic conditions. Guggenberger (1934) reports having isolated pathogenic

gas bacilli from the vaginal secretion of seven out of twenty normal pregnant women.

Apparently several factors must be active in order to produce clinical gas gangrene. Muscle damage, circulatory stasis, anaerobic implantation and shock provide the ideal soil.

1. The seriousness of gas bacillus infections and the insidious rapidity of onset warrant constant vigilance.

2. The milk test is the simplest, quickest culture test for the presence of gas bacilli and is more conclusive than stained smears.

3. The hemolysis of gas bacillus infection plus the shock so often attendant in traumatic cases makes transfusion a necessity.

4. Combined surgical and serological control of the infection offers the best results.

5. A typical case is presented.

I wish to acknowledge the technical assistance of Miss Rosalie Hostetter.

BIBLIOGRAPHY

1. Manson, Melville: Pathogenic Gas-Producing Anaerobic Bacilli in Chronic Ulcers, *Arch. Surg.* **24**:752-774 (May) 1932.
2. Orr, Thomas G.: Gas Bacillus Infections Following Clean Amputations, *Am. J. Surg.* 113-115 (July) 1934.
3. Loehr, Wilhelm: The Present Stage of the Investigation of Gas Edema and of Its Treatment With Serum, *Brun's Beiträge zur klin. Chir.* **158**:569-589 (December 23) 1933.
4. Khreninger-Guggenberger, Josef: The Occurrence of Gas Bacilli in the Vaginal Secretion, *Zentralbl. f. Gynäk.* **58**:434-438 (February 24) 1934.

LEAD AMBLYOPIA WITH CATARACT FROM THE SAME SOURCE

REPORT OF A CASE

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Perhaps it would be apropos to preface the report of the following rare and interesting case with a brief resumé of the effect in general of lead on the eye. Historically it is of interest to note the description by certain ancient writers of a mysterious colic accompanied by blindness. From our present point of view it is fair to suppose this to have been lead colic and lead amaurosis.

For a little more than 300 years it has been known that lead may cause blindness. Early in the seventeenth century Smethius was the first observer to record ocular disease in cases of lead toxemia. According to our available statistics the condition is a rare one. Groenouw's figures show 1 per cent of cases with some eye involvement among patients suffering with lead intoxication. The analysis of a different series of cases by Becquerel Des Planches shows 1.2 per cent

of eye involvement among cases of lead toxemia. De Schweinitz reports but three cases of lead amblyopia among 15,000 cases of general eye conditions seen in the course of five years of hospital work. As a cause of amblyopia when compared with other toxic causes of amblyopia we find it quite rare. Among 138 cases of toxic amblyopia Uthoff found but one case due to lead.

This treacherous poison attacks the eye in a number of different ways. The nerve fibers or blood vessels within the globe may be attacked, or the optic nerve behind the globe may suffer or one or more of the eye muscles either within the globe or external to it may become paralyzed, the pathological process in paralysis of the ocular muscles probably being neuritis set up by the toxin in the nerve which supplies the particular muscle affected in much the same manner in which the musculospiral nerve is affected when wrist drop occurs. Much of the morbid change is believed to be due to endovascularitis.

The optic nerve may present a neuroretinitis with papillitis or purely a retrobulbar neuritis. There is a wide range of severity according to the amount of toxin present so that individual cases present wide gradations of the amount of injury sustained. This passes all the way from temporary or partial blindness and complete recovery to total and permanent blindness in cases where atrophy follows optic neuritis or neuroretinitis. The visual field shows numerous changes especially where the inflammation is retrobulbar and also in the stage of optic atrophy. We may find the field presenting peripheral contraction, or there may be reentering sectors of blind areas. The scotomata may be relative or absolute. Cases of homonymous hemianopsia have been reported but are very rare. Central scotomata occur and are generally more severe than when this phenomenon is produced by toxic agents other than lead.

Not all these cases present fundal lesions discernible with the ophthalmoscope though probably most of them do. These visible changes are of course those common to neuroretinitis in general, viz., increased vascularity, hyperemia and congestion of the retinal vessels, increased capillarity of the disk, swelling of the disk and obliteration of its outlines. According to Stood and De Schweinitz about 50 per cent of the cases of lead amblyopia show changes in the optic nerve.

Owing to the changes sometimes induced in other vital organs such as nephritis or to lead encephalopathy, it may become a matter of some difficulty in a given case to differentiate the changes which result directly from the action of the toxin and those which result from other organic disease. Taken all in all it cannot be said that there is any change in the eye which is purely diagnostic of lead toxemia, the diagnosis ultimately resting upon the presence of a general lead toxemia and the absence of other toxic agents. Parisotti and Malotti decided from a very careful ophthalmoscopic examination of a case of lead amblyopia that the condition was one of endarteritis with a gradually developing occlusion or obliteration of the vessel. To this condition they applied the name *endarteritis saturnina obliterans*. This coincides exactly with the observations of Oeller, Kussmaul, Meyer and others, viz., that the intimate pathology consists of inflammation and proliferation of the tunica intima of the vessel through which flows the blood bearing the toxic reagent. The result is an obstruction or obliteration of the vessel more or less complete according to the severity of the action of the toxin. As a result of the obliteration of the nutrient vessels the tissue from which the nutrition is cut off undergoes degeneration either fatty, fibrous or hyaline. This affords the logical explanation of the occurrence of such cases as the one reported herewith, viz., the nutrition being cut off, the proper substance of the lens undergoes fatty degeneration and becomes opaque, in other words, a cataract develops. The lens is of course an avascular structure and obtains nutrition by osmotic currents passing through the capsule, the fluids bearing the nutriment emerging from the vessels of the ciliary body. When this supply falls below the irreducible minimum the lens fibers will degenerate. This would naturally appear to be more reasonable than to suppose the cataract to result from the direct action of the toxin upon the lens.

CASE REPORT

T. M., July 14, 1921. A single man, aged 31, house painter. States that his sight has been failing about three weeks; also that he has been suffering with lead poisoning about 11 months.

Vision: Right eye, fingers at 18 inches; left eye, 40 per cent or 20/50.

The right eye presented an immature nuclear cataract. The left eye presented a slightly congested fundus but otherwise was normal. The examination of the intraocular tension, pupils, lids, muscles, cornea, etc., did not reveal anything abnormal. Has been working as a painter since 1914. During the last eleven months he has developed se-

vere symptoms of lead poisoning. Has had severe colicky pains centering around the umbilicus with a bad taste in the mouth and loss of appetite. Has had constipation alternating with diarrhea. Has had wrist drop and severe headaches. Has lost 20 pounds in weight, declining from 165 to 145. His knees and ankles have been painful and at times he has had tremors of different groups of muscles. He discontinued working at his trade, has been taking treatment, and has been improving. He is fond of hunting and shooting. He shoots right-handed and when the sight of his right eye failed he was no longer able to do any shooting.* I ordered small doses of potassium iodide well diluted and regular doses of magnesium sulphate drunk with considerable water.

August 29. Vision right eye, sees motions and shadows; left eye, 80 per cent. The congestion of the left fundus has disappeared.

October 1. Right eye, cataract mature. Light perception and projection only; left eye, vision 100 per cent.

October 8. Operation on right eye of extraction combined with iridectomy. An uneventful recovery occurred. Patient has not complained of any lead symptoms for several months. Patient was under observation until December 29, 1922. At this time he was not complaining of any lead symptoms. With a +9.00 diopter spherical lense for the right eye vision was 20/30.

I have recently looked over this patient's hospital record and find nothing unusual in it worth mentioning. He left the hospital on October 20. Under date of October 9, 24 hours after the operation, a note reads, "Corneal wound in good order, flap united, anterior chamber full, pupil clear." My record shows that the left eye recovered from the retinal irritation and the vision improved from 40 to 100 per cent. In reflecting over this case one is impressed by the likelihood that this case untreated would have developed some degree of optic atrophy more or less severe.

The clinical notes of the following interesting case are appended as it presents points of striking similarity. It is much more severe.

CASE REPORT

October 19, 1933. J. H. A., laborer, aged 48. Family history and personal history are rather good as neither reveals anything serious concerning his present physical condition. His health was good and his eyes had never bothered him in any way when he went to work in midsummer of 1931 at removing old lead paint with a hand electric machine. This consisted of a number of disks with saw-like edges which when driven at speed scratched the paint off of the walls with of course some of the plaster upon which it had been applied. The air was thus filled with dust loaded with lead and gritty particles of plaster.

He worked without a respirator and inhaled the dust. I believe we are correct in thinking that plumbism is caused more quickly by inhaling lead laden dust than in any other way. Patient continued at this work for two months but soon began to suffer

* The therapeutics of this condition has changed radically of late years. The treatment used in this case was that formerly advised and employed. At present the treatment employed consists of calcium gluconate, ammonium chloride, phosphoric acid, and a diet of low calcium content. Catharsis with magnesium sulphate is produced as indicated or required.

in different ways. The eyes began to smart and burn and later the vision began to fail, only a little at first but it gradually got worse. He didn't have any medical advice and so developed into a full-fledged case of lead poisoning with symptoms of colic, diarrhea alternating with constipation, pain and weakness in the arms, legs and back, tremors in certain groups of muscles, loss of appetite, a bad taste in the mouth, loss of weight amounting to 38 pounds, and insomnia. A blue line appeared upon the gums and the microscope showed stippled cells in the blood.

In addition, symptoms referring directly to the eyes and to the respiratory system occurred. Severe aching pains through the eyes and radiating through the head lasted for several years. There was smarting, burning and matting of the eyes with redness and inflammation. For 12 months he suffered from aching pain through the lungs and chest with coughing and expectoration. For two years he had pain through the nose with swelling of the mucosa so that most of the time he was unable to breathe through the nose. Some months after quitting work a cataract began to form in the left eye which rapidly advanced to maturity.

When I first examined him the right optic nerve was well advanced in the secondary atrophy which follows optic neuritis. Vision was reduced to counting fingers at 12 feet with the visual field greatly reduced. The only color he could perceive was red. The left eye possessed scarcely any perception for light, and that only when very strong and condensed. Both pupils were active. The intraocular tension was normal. The extraocular muscles were in good coordination and functioned normally. The patellar reflexes were normal. Romberg was normal. There never have been any symptoms of encephalopathy. The Wassermann was normal.

I have now had this case under observation 14 months. The vision in the right eye is now only sufficient to count fingers at a distance of 9 inches and the visual field is reduced to an irregular, color blind area approximately 20 degrees in diameter. We are evidently fully justified in considering this a case of bilateral optic neuritis with consecutive atrophy due to lead. The cataract in the left eye is of toxic origin, the toxin, of course, being lead. Under the circumstances treatment does not appear to be of any avail.

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BIBLIOGRAPHY

- Edsall and Howland: *Medicine* 4, 1925.
Aub, Fairhall, Minot and Reznickoff: *Lead Poisoning*, 202.
Piersol, George M.: *The Cyclopaedia of Medicine*, 8.
Sajous, Louis T. and Hundley, J. Warren: *Lead, Lead Paralysis*, 77.
Wood, Casey A.: *Etiology of Cataract*, *Am. En cycl. Ophth.* 2:1444, 1913.
Lewin, L.: *Die Chronische Vergiftung des Auges mit Blei*, *Berl. klin. Wehnschr.* 41:2:1298 (July to December), 1904.
Blass, Nicolaus: *Paralysis of Accommodation and Pupillary Disturbances After Lead Poisoning*, *Am. J. Ophth.*, Series 3, 14:980, 1931.
Wood, Casey A.: *Chromatopsia of Lead*, *Am. En cycl. Ophth.* 3:2200, 1913.
DeSchweinitz: *Diseases of the Eye*, Ed. 9, 579, 1921.
Gibson, Lockhart: *Report of 13 Cases of Optic Neuritis from Plumbism*, *Brit. Med. J.* (Nov. 14) 1908.
Brit. J. Ophth. 15:637, 1931.
Abst. Am. J. Ophth., Series 3, 15:267, 1932.
Brown, E. V. L.: *Fuchs Diseases of the Eye*, *Eng. Ed.* 10:427, 1933.
Ball, James M.: *Saturnine Retinitis*, *Modern Ophthalmology*, Ed. 1, 508, 1904.
Stood: *Graefes Archiv.* 30: 3, 215, 1884.
Von Schroeder: *Graefes Archiv.* 31: 1, 229-249, 1884.
DeSchweinitz, Geo. E.: *Toxic Amblyopias*.
Norris and Oliver: *System of Diseases of the Eye*, 4:823, Ed. 1, 1900.

Wood, Casey A.: *Toxic Amblyopia from Lead Poisoning*, *Am. En cycl. Ophth.* 17:12809, 1913.

Gibson, Lockhart: *Ocular Neuritis Simulating Basal Meningitis: Plumbism*, *Austral. Med. Gaz.* (Oct. 20), 1897.

Oeller, Von Dr. J. N.: *Ueber hyaline Gefass Degeneration als Ursache einer Amblyopia Saturina*, *Virchow's Archiv.* 86:329, 1881.

Parisotti: *Recueil d'Ophthalmologie*, 7:350.

HETEROPHILE ANTIBODIES IN ACUTE INFECTIOUS MONONUCLEOSIS

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In 1911 Forssman¹ observed that antibodies in the form of lysins and agglutinins for sheep erythrocytes appeared in the blood of rabbits injected with an emulsion of tissues, other than red blood corpuscles, of the cat, horse and guinea pig. These antibodies have been designated "heterophile" or Forssman antibodies. Studies of normal blood serum of humans by many observers^{2, 3, 4, 5, 6, 7} have revealed the presence of sheep cell agglutinins and hemolysins in a titer rarely exceeding 1:8. In 1929 Davidsohn² reported an increase in titer up to 1:64 in patients treated with horse serum, an observation since corroborated by many others.

Paul and Bunnell⁵ in 1932 reported the occurrence of higher titers in four patients with acute infectious mononucleosis, and the following year Bunnell⁶ added 15 cases with a titer as high as 1:4096 in some of them. Bernstein⁷ and Van Ravenswaay⁸ reported similar observations. These authors have failed to find such increases in diseases simulating acute infectious mononucleosis.

The methods used in determining hemolysins and agglutinins in the cases reported are those described by Paul and Bunnell.⁵

REPORT OF CASES

Case 1. D. B., aged 24, a student nurse, was admitted to the Jewish Hospital on November 13, 1934, with history of pain in the lumbar region which she attributed to lifting a patient. Her past history was irrelevant. There was no recent or remote history of horse serum therapy or the ingestion of coal tar derivatives. There was a definite maternal and paternal family history of allergy.

Her temperature on admission was 102.6 F., pulse rate 110. Did not appear very ill and physical examination was negative. Complained of pain in the left upper quadrant shortly after admission and the spleen became palpable. Temperature remained elevated, reaching as high as 103.6 F. with a corresponding tachycardia. She developed a slight sore throat

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and a tender lymph node at the angle of the left mandible. Several urticarial lesions appeared during her stay in the hospital. Under a régime consisting of symptomatic treatment her temperature receded by lysis and she was discharged clinically improved on November 30, 1934.

Special studies, including chest radiograph, blood, stool and urine cultures, intradermal melitensis test, Felix-Weil and B. tularensis agglutinations, were negative. Three Widal tests gave variable results, agglutinations varying from negative to one plus in a dilution of 1:160; but she gave a history of typhoid-paratyphoid inoculation within the past year.

The differential diagnosis was difficult at the onset of the disease and the solution presented itself in studies of the blood picture. The total erythrocyte count was 4,170,000 and the hemoglobin 100 Sahli units. The total leukocyte count varied between 3300 and 10,550. The Schilling differential (table 1) showed a persistent "shift to the left" and a progressive increase in the percentage of lymphocytes reaching as high as 82 per cent. The picture was that of a relative and absolute increase in lymphocytes with a corresponding decrease in cells of the myelocytic series. The monocyte count did not exceed 5 per cent. The lymphocytes were of medium size and contained a moderate amount of deep blue granular cytoplasm containing few azure granules. The nuclei were generally ovoid although some showed indentations. The nuclear material was well differentiated from the cytoplasm and took a deeper basophilic stain than normal. The chromatin showed a marked tendency to sharp differentiation from the parachromatin. In two of the larger lymphocytes there were seen an azurophilic rod. No immature lymphocyte forms were seen.

Another diagnostic aid was an increase in titer of heterophile antibodies which were present in a dilution of 1:128 on the twentieth day of the disease. Two months later the titer remained elevated, being positive in a dilution of 1:64.

Case 2. M. K., aged 21, student nurse, was admitted to the Jewish Hospital on November 26, 1934, with a history of sore throat for five days preceding admission. Family history was negative. Past history irrelevant and no history of injections of horse serum or the ingestion of coal tar derivatives. During the previous summer she had an attack of enterocolitis with mucus in stools, which were negative for the typhoid-paratyphoid dysentery group of organisms.

Admission temperature was 101.8 F. and the tonsillar pillars were injected but contained no exudate. There were tender, discrete lymph nodes in the anterior cervical chain and some small non tender nodes in the posterior chain. The rest of the physical examination was negative. The temperature subsided on the morning following admission and remained normal. The throat lesion was progressive; exudate appeared on the left tonsillar pillar which ulcerated. Smears revealed an increase in fusiform bacilli and spirochetes but these were not present in abundance. The throat culture contained nonhemolytic streptococci and micrococcus catarrhalis. The Kahn and urine were negative.

The blood picture was interesting. The total erythrocyte count was 4,710,000 and the hemoglobin 100 Sahli units. The total leukocyte count varied between 6400 and 12,450. The Schilling differential showed an initial absolute and relative lymphocytosis which was progressive and reached a percentage of lymphocytes as high as 78 per cent (table 2). There was no "left shift." The monocytes were increased up to 8 per cent. The lymphocytes showed a morphology similar to those presented in case 1.

The heterophile antibody titer was increased, agglutination and hemolysis being present in a dilution of 1:64 ten days after the onset of the illness.

Table 1

| Date | Total WBC | Schilling Differential | | | | | | | |
|-------|-----------|------------------------|------|-------|------|-------|------|-----|------|
| | | Bas. | Eos. | Myel. | Juv. | Stab. | Seg. | Ly. | Mon. |
| 1934 | | | | | | | | | |
| 11-13 | 6800 | 1 | 1 | 0 | 0 | 9 | 63 | 25 | 1 |
| 11-14 | 3300 | 0 | 0 | 0 | 2 | 20 | 53 | 20 | 5 |
| 11-17 | 3900 | 0 | 2 | 1 | 2 | 13 | 18 | 59 | 5 |
| 11-19 | 3950 | 0 | 2 | 0 | 1 | 23 | 12 | 58 | 4 |
| 11-25 | 10,550 | 0 | 1 | 0 | 3 | 10 | 11 | 74 | 1 |
| 12-2 | 8750 | 0 | 1 | 0 | 1 | 3 | 9 | 82 | 4 |
| 12-8 | 5600 | 0 | 2 | 0 | 1 | 7 | 28 | 58 | 4 |
| 12-15 | 5050 | 0 | 2 | 0 | 0 | 7 | 36 | 52 | 3 |

Table 2

| Date | Total WBC | Schilling Differential | | | | | | | |
|-------|-----------|------------------------|------|-------|------|-------|------|-----|------|
| | | Bas. | Eos. | Myel. | Juv. | Stab. | Seg. | Ly. | Mon. |
| 1934 | | | | | | | | | |
| 11-26 | 6400 | 1 | 0 | 0 | 0 | 5 | 28 | 58 | 8 |
| 11-27 | 7150 | 1 | 1 | 0 | 0 | 3 | 16 | 75 | 4 |
| 11-29 | 12,450 | 0 | 0 | 0 | 0 | 3 | 17 | 78 | 2 |
| 12-2 | 9150 | 1 | 1 | 0 | 0 | 1 | 21 | 73 | 3 |
| 12-15 | 10,900 | 2 | 4 | 0 | 0 | 2 | 50 | 42 | 5 |

SUMMARY

Two cases of acute infectious mononucleosis are presented in which heterophile antibodies were found in increased titer. The test has been offered as a diagnostic aid with certain aspects of specificity.

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BIBLIOGRAPHY

1. Forssman, J.: Die Herstellung hochwertiger spezifischer Schafhamolysine ohne Verwendung von Schafblut, *Biochem. Ztschr.* **37**:78, 1911.
2. Davidsohn, I.: Heterophile Antibodies in Serum Sickness, *J. Immunol.* **16**:259, 1929.
3. Deicher, H.: Production of Heterospecific Hemagglutinins by Injection of Heterogenous Serum, *Ztschr. Hyg. u. Infekt.* **106**:561, 1926.
4. Perry, E. B., and Rhodes, G. B.: Hemolysin and Hemagglutinin for Sheep Corpuscles in Human Serums of all Iso Agglutinative Groups, *J. Infect. Dis.* **44**:65, 1929.
5. Paul, J. R., and Bunnell, W. W.: Presence of Heterophile Antibodies in Infectious Mononucleosis, *Am. J. Med. Sc.* **183**:90, 1932.
6. Bunell, W. W.: Diagnostic Test for Infectious Mononucleosis, *Am. J. Med. Sc.* **186**:346, 1933.
7. Bernstein, A.: Antibody Responses in Infectious Mononucleosis, *J. Clin. Invest.* **13**:419, 1934.
8. Van Ravenswaay, A. C.: Heterophile Agglutination Test in Diagnosis of Infectious Mononucleosis, *New England. J. Med.* **211**:1001, 1934.

Charles L. Short and Walter Bauer, Boston (*Journal A. M. A.*, June 15, 1935), employed fever induced by diathermy in twenty-five cases of rheumatoid arthritis. In twenty cases at least temporary improvement was shown, both subjectively, in freedom from pain, and objectively, in increased joint motion and occasionally in decreased effusion and swelling. This improvement was only temporary, and in only five has the gain been maintained to the end of the follow-up period of from more than three years to one year. The number of treatments given each patient varied from one to fifteen, and the usual temperature maintained was 104 F. for four hours. While no patient was seriously injured by this treatment, all looked on it as a harrowing ordeal. When the results obtained are balanced against the severity of the treatment, the authors' conclusion is that in rheumatoid arthritis the use of this method is only occasionally justified and should not be used to the exclusion of general treatment.

TRAUMA OF THE URINARY TRACT

THREE ILLUSTRATIVE CASES

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REPORT OF CASES

GUNSHOT WOUNDS, ONE OF THE KIDNEY AND ONE OF THE KIDNEY REGION

Case 1. M. B. entered the Arcadia Valley Hospital, Ironton, Mo., about an hour after having been accidentally wounded by a pistol. He stated that he was transferring the pistol from the right hip pocket to a loop on the left side of his belt. He was using his right hand for this purpose and in attempting to thrust the pistol into this loop it was accidentally discharged. Examination revealed a clean round wound of entry, not surrounded by powder marks, situated very slightly to the left of the nipple line on the left side and about an inch below the costal margin. The wound of exit was in the back at almost exactly the same level and lateral to the erector spinae muscle. This wound was even sharper and cleaner than the one given as the wound of entry. Doubt, of course, arose at once as to the correctness of the man's story. That, however, need not concern us. There was blood in a voided specimen of urine and diagnosis of injury to the left kidney was established. Dr. George Gay examined this patient on admittance and found enough evidence of abdominal injury to prompt an exploration of the abdominal cavity. This was done and no wound to an abdominal viscus was found. The peritoneum had been nicked but not entered and a small blood clot was found. This was evacuated and the wound closed.

I saw this case the following day. Intravenous pyelograms showed that the ureter had not been torn nor was there any extensive extravasation of urine from the kidney pelvis. Expectant treatment of this kidney was therefore recommended based upon the following considerations: 1. Experience during the World War taught us that it is not wise to explore the kidney region immediately after laparotomy. To do so involves an excessive amount of shock. 2. With the ureter known to be intact the probability was that this kidney could ultimately be saved. 3. There was no danger that the patient would die of hemorrhage when no hematoma had appeared in the kidney region at the end of 24 hours. 4. The only dangers connected with this kidney wound were sepsis and a moderate amount of urinary seepage through the wounded capsule and both these indications could be met later by incision and drainage. Meanwhile with the temperature not above 101 it appeared wise to let the laparotomy wound consolidate and postpone exploration of the kidney region until such time as the clinical course indicated this to be imperative. The patient remained comfortable with the temperature always below 101 for about four days but on the fifth day the temperature began going up. During the night it reached 103. Accordingly on the sixth day the left kidney region was opened through a conventional lumbar incision. Keeping well back of the kidney and separating fatty tissue by blunt dissection, the abscess was opened and a small amount of black partially liquefied coagulum was evacuated. Two drainage tubes of non-collapsible rubber were placed behind the kidney and sewed to the skin. The soft parts, muscle, fascia and skin were now drawn together with through and through silkworm gut sutures. The patient left the operating room in good condition.

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The convalescence was smooth and the tubes were not disturbed during the first week and were then gradually withdrawn. The patient made a good recovery not attended by any further complications.

Case 2. M. B., entered Arcadia Valley Hospital, Ironton, Mo., in November, 1933, about one hour after having been shot in the abdomen while squirrel hunting. The bullet had entered about an inch below the umbilicus and somewhat more than an inch to the right of the median line. There was no wound of exit. A roentgen ray showed the bullet lying above the pelvic brim and somewhat lateral to the highest point of the iliac crest. Dr. George Gay, who received this patient, made a diagnosis of wound of the intestine and immediate operation was performed. On opening the abdomen, a wound was discovered in the ascending colon somewhat above the region of the cecum. The wound was just one round hole from which a certain amount of fecal contents had escaped. It was at once closed with a circular suture. A careful examination of the cecum showed no wound of exit from this viscus. The bullet might conceivably be in the colon although it was not palpable. It is more probable that it had left the colon through a wound in its retroperitoneal surface. The simple closing of the wound of entry into the colon had protected the peritoneal cavity and it was felt that an extraperitoneal infection could be taken care of by a lumbar incision later on. Therefore, it was the opinion of Dr. Gay that the wisest thing to do was to close the peritoneum with drainage and await developments. I was present and concurred with this opinion.

Considering the course which this bullet had taken, it appeared unlikely that there was any wound of the urinary tract. There was never any blood in the patient's urine. The bullet was, however, lodged in what might be described as a very low kidney region and if an abscess developed, which was to be expected, it would pursue very much the clinical course of perinephric abscesses. It is to be noted that no attempt was made during the laparotomy to close the wound of exit from the colon. This could not be reached except by an incision through the mesocolon with great danger of soiling the peritoneum. It was felt that the man was in a safer position with a perinephric abscess than he would be if extensive soiling occurred as the result of attempting an anatomically complete operation. The patient did very well for about two weeks. There was a slight tendency to fever most of the time but there was no mass to be felt in the flank. The recovery from the laparotomy was uneventful. At the end of three weeks he was feeling well, without fever, and was permitted to go home. A week later I saw him at Dr. Gay's request. He had been feeling badly for about 12 hours and his temperature was 102. An infiltrated area was now to be felt in the right flank extending from the crest of the ilium upward for about three inches. The patient was taken to the Bonne Terre Hospital, Bonne Terre, Mo. The right kidney bed was opened up through a lumbar incision. A small amount of dark, foul-smelling fluid was encountered. The cavity was explored with the fingers, but this was done very gently for fear of tearing a hole in the colon. It was thought that the bullet was felt at one time but it slipped away. No effort was made to remove it. The wound was drained with two stiff rubber tubes which were loosened on the seventh day and gradually removed during the second and third weeks. It was thought that possibly the bullet would follow these tubes on removal. This it failed to do but the wound healed without complications and there has been no trouble since.

In dealing with gunshot wounds of the

kidney complicated by a possible wound of the abdominal viscera a pitfall is prepared for us because the diagnosis of kidney injury is often so easy as compared with the diagnosis of a perforated intestine. The appearance of blood in the urine after such an injury makes the diagnosis, and the temptation is often very great to attribute all the patient's symptoms to this known injury of the kidney. I recall seeing a case many years ago in the St. Louis City Hospital of a young gangster in his twenties who had been shot through the left kidney during an attempted hold-up. There was no doubt about the injury to the kidney but the question was whether or not some other more immediately important injury was present. The patient was seen by consulting surgeons and internists. The track of the bullet was carefully studied and careful physical examination made. The young man was not vomiting, at least there was no persistent vomiting. He made no complaint of excessive pain. The rigidity of the abdominal muscles was not very marked and it was not thought possible to state that an abdominal viscus had been injured. A disquieting feature of the case was the extreme apathy of the patient. He made no complaint and was not inclined to talk. I explored the left kidney region and found that the upper pole had been completely shattered. Hemorrhage was not excessive. A very cautious exploration with the fingers did not reveal any tear in the peritoneum. The upper pole of the kidney was resected and all bleeding points controlled. The kidney pedicle had of course not been torn and it seemed that the patient ought to make a good recovery. Nevertheless, that night he went into collapse and died about 4:00 a. m. Autopsy revealed a perforating wound of the stomach.

Hugh Young in his *Manual of Military Urology* states that where injury to the abdominal viscera exists along with an injury to the kidney the belly should not be opened first and the loin later. The shock of such procedure is always excessive. Where the two operations are to be done at one sitting the loin should be operated upon first and the laparotomy performed afterwards. Marion (*Traité d'Urologie*) in discussing wounds of the kidney tract has the following to say: "When wounds of other organs exist which are more serious than the wound to the kidney (intestines, peritoneum, etc.) these wounds should receive the first at-

tention of the surgeon, the kidney wound to be attended to afterwards. If the kidney wound is slight and not attended by severe hemorrhage, it should be let alone. Nothing need be done to it until the appearance of pain and fever indicate the presence of a complicating infection. If the injury to the kidney is severe, as in war wounds inflicted by cutting instruments or the explosion of large high-power shells, immediate intervention may be necessary in order to clean the tract and remove shell fragments, but even here conservatism should always be the rule, nephrectomy the exception." It will be noted that there is an apparent disagreement in the positions of Marion and Young. Marion says we should always attend to the abdominal wounds first, whereas Young states that if kidney and abdomen are to be attended to at one sitting, the kidney should be attended to first. The disagreement is more apparent than real, however, for you will note that Marion prefers to leave intervention upon the kidney to a secondary operation, possibly after the lapse of a week or more; that is, when pain and fever make drainage essential.

In practically all cases occurring in time of peace it is possible and altogether wise to follow the dictum of Marion in this particular. Where a known kidney injury exists and there appears no danger of impending death from hemorrhage and where a concomitant injury to the abdominal viscera is even suspected, the first thing to do is to explore the abdominal cavity. It is rare indeed that there is any great hurry about operating upon an injured kid-

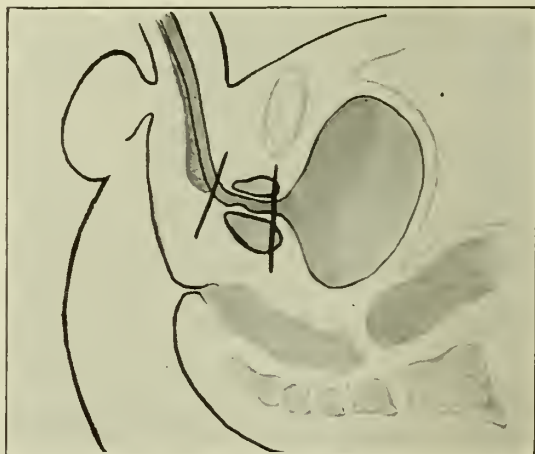


Fig. 1. Portion of urethra which was torn out by the blow.

ney. If the great vessels of the pedicle have been torn the patient will probably die before the surgeon can get to him. If he reaches the hospital alive it is unlikely that he will bleed to death. The only danger which confronts him, provided always that the ureter is intact, is from urinary extravasation and infection. Both of these give an indication for drainage, and as a rule for drainage only, which can be met when it arises.

Where there is time an intravenous pyelogram should be made in all such cases. This almost always gives us accurate information as to the condition of the ureter. If the ureter has not been torn the kidney can generally be saved. Of course if the ureter has been divided the kidney will ultimately be lost and it is well for the surgeon to know this as promptly as possible. He should remember, however, that the appearance of blood in the urine is far from being an indication for immediate operation. If there is an abundance of blood in the urine it means in all probability that the ureter is intact and that it is draining the kidney with a reasonable degree of efficiency. On the other hand, if no gross blood is found in the urine this fact may be due to a complete tear across the lumen of the ureter. Nothing can get down into the bladder under these circumstances and extravasation with the appearance of tumor will be relatively rapid. However, most gunshot wounds of the kidney or of the kidney region do not sever the ureter. We may, therefore, follow the dictum of Hugh Young as well as Marion. Never open the belly first, and fol-

low this by an immediate incision in the loin. Let the loin alone for a week and when the patient is well convalescent from the laparotomy, drainage of the kidney region, which is all that is necessary in most cases, can be attended to.

EVULSION OF THE ENTIRE POSTERIOR URETHRA

A. A., aged 45, entered the Bonne Terre Hospital, Bonne Terre, Mo., in the afternoon of May 9, 1934, with the following history:

While plowing that morning his horse had become excited and had gotten out of control. In attempting to subdue the animal he had been thrown and the point of the plowshare had entered the left buttock with great violence. After this the patient was for a while unable to pass his water and when he finally succeeded in doing so he observed that all the urine came out through the wound of entrance where the plowshare had torn the left buttock. An attempt at catheterization was made which proved unsuccessful and I saw him first lying upon the roentgen ray table with the catheter in situ. Immediate roentgen ray study was requested; this showed that the catheter had followed the urethra through the cut-off muscle and had then turned at a sharp angle toward the left buttock. A contrast medium was now injected through the catheter and another roentgen ray picture taken. As this fluid escaped immediately through the wound in the skin the resulting pictures showed nothing very informative. Operation was set for 4 o'clock in the afternoon of May 9.

Operation.—With the patient in the lithotomy position a grooved sound was passed without encountering any obstruction. It appeared to go into the bladder and the handle could be depressed, turned, etc. A woven silk coude catheter did not, however enter the bladder. It would go in very deeply but its tip perineum was opened, using an inverted Y incision did not feel entirely free and it drained no urine. The and the urethra was stripped down to the cut-off muscle. At this point it was opened upon the sound and a flaring gorget with an olive tip was passed along the groove of the sound into the bladder. On removal of the sound there was a gush of urine. The index finger of the left hand was introduced along the gorget and the extent of the injury this man had received soon became apparent. There was no posterior urethra present. The finger guided by the gorget entered the bladder neck and was grasped by the sphincter muscle, but when the finger was withdrawn a little way a cavity was discovered immediately outside the bladder about the size of an orange. The finger could be passed completely around the bladder neck along the outside and there was no shredded tissue attached to it. The bladder neck was simply floating free at the upper end of this cavity. After outlining the extent of the cavity with the finger it was somewhat difficult to find the bladder neck again. When this was achieved the bladder was pulled down a little way and the anterior lip of the orifice was anchored just below the pubic bone by a single suture applied by means of the boomerang needle holder of Hugh Young. A remnant of mucous membrane from the superior wall of the urethra was included in this stitch as well as a bit of fascia attached to the pubic bone. After this procedure, a sound was passed through the entire urethra and it was found that with the bladder neck immobilized in this fashion a large sized sound following the roof of the urethra would pass directly into the bladder without a hitch. No attempt was made

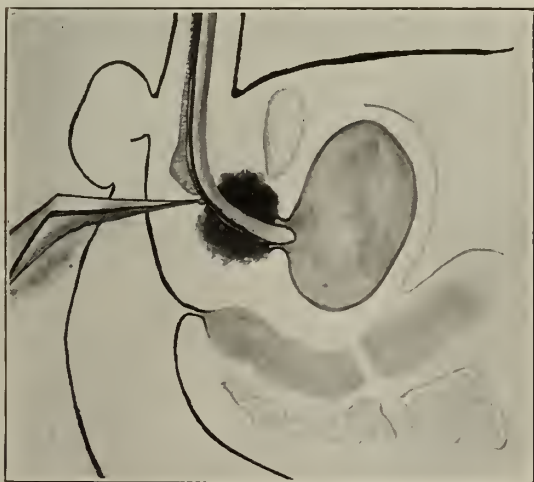


Fig. 2. A grooved sound has been passed into the bladder and the urethra opened upon it just behind the bulb. A flaring gorget is being introduced along the sound into the bladder.

at further repair. A number 32 perineal tube was now passed through the perineal wound into the bladder and anchored to the skin with a silkworm gut suture. The soft parts were approximated around it with three silkworm gut sutures and the patient was sent to bed in good condition.

This procedure, as will be seen, very nearly eliminated the posterior urethra. Just what had become of this man's prostate I do not know. It may be that there was some prostatic tissue still adherent around the neck of the bladder but if so it was certainly little for no prostate was to be felt and it could clearly be made out that the urethra had been torn from the bladder flush with the vesical orifice. The plowshare had passed from the left buttock through the perineum and well over into the right buttock though it had made no wound of exit through the skin. Considerable bloody debris was evacuated at the time of the operation and clots were scraped out with the finger, but the prostate was not identified and if it was evacuated it must have come out in a very macerated condition. No time was spent in attempting to clear up this point while the patient was on the operating table. As soon as the wound appeared to be relatively clean and the repair sufficient the wound was closed as described.

As this patient ran a continuous fever and as there was a great deal of repair left for nature to accomplish the perineal tube was left in situ until the thirteenth day with the patient receiving every day an instillation of argyrol, 10 per cent. On the thirteenth day the perineal tube was removed and a two-eyed hollow-tipped catheter was passed through the urethra into the bladder on a mandarin. This was changed at the end of a week and a week later was removed. The patient continued to show some signs of sepsis for a long time with the temperature up to 100 and 101 at times. In spite of this the local condition healed rapidly. There was never any evidence of retained pus and the wound looked healthy at all times. Ultimately a phlebitis of the right leg occurred which prolonged the stay in the hospital but had no effect

upon the local operative result. Sounds were passed after the third week and always went into the bladder with no obstruction or difficulty whatever. When last seen, early in August, about three months after the accident, he accommodated a 27 French sound. He could pass his water at will and with a good stream and also had control. He stated that he did not always feel comfortable as far as control was concerned. If he was not careful he might at times be incontinent upon exertion. His principal complaint was the persistent edema of the right leg.

This case appears to me worthy of the somewhat extended description which I have given it; first, because of the severity of the injury received and, second, because it illustrates what are to my mind some important features of perineal surgery of the male urethra in general. It will be noted that the entire posterior urethra had been torn out by the point of the plowshare leaving a gap from just behind the cut-off muscle to the bladder neck. We were confronted, therefore, with the question as to how best to repair this gap. Rather extensive operations have been suggested for the repair of such defects. These generally include some sort of careful anastomosis employing a considerable number of sutures to sew the torn end of the urethra onto the bladder neck throughout its entire circumference. It will be noted that one suture was all that was employed in this case. We were concerned only with seeing to it that the roof of the urethra was continuous with the anterior lip of the vesical orifice and that a large sized sound as it was passed through the anterior urethra would glide along the urethral roof into the bladder without a hitch. We know that in the operation of suprapubic prostatectomy an inch or two of the posterior urethra comes away with the prostate and yet this gap in the mucous membrane lining the canal is rapidly regenerated and the process of repair does not lead to any embarrassing stricture formation. Of course, in doing a prostatectomy, the capsule of the prostate is left behind. It collapses down to a narrow lumen and forms a base upon which the epithelium can regenerate.

Conditions in our case were somewhat different as no such capsule surrounding the urethra was present. We know, however, that the posterior urethra has remarkable powers of regeneration and what was done in this case was merely to conform to what I have always regarded as a cardinal principle; namely, see to it that the roof of the urethra is intact because from this roof the

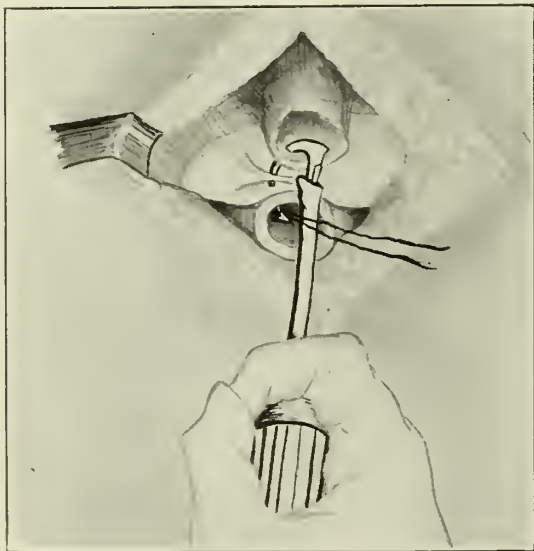


Fig. 3. The one important stitch in the repair of such an injury. The floor of the urethra is not closed but a large catheter, 32 F., is introduced into the bladder through the perineal wound.

rest of the urethra will regenerate. Before the patient leaves the operating room always be sure that conditions are left in such shape that a large sound can be passed directly into the bladder without the slightest hesitation or difficulty. If the method of repair pursued is such as to make it possible to pass a sound into the bladder with the utmost ease during the after-treatment, that is, if the sound will practically fall into the bladder of its own weight guided only by the hand of the surgeon, the ultimate result will be satisfactory. If there is difficulty about the passage of a sound the ultimate result will be poor. This is the point about which the surgeon operating upon the deep urethra should be absolutely certain. If an attempt at more perfect anatomical repair results in the formation of a ridge or any irregularity whatever which interferes with the easy passage of a sound, this will more than counterbalance any possible advantages there may be in such a procedure. The placing of many sutures may readily interfere with drainage and expose the patient to an increased danger from sepsis during immediate convalescence from the operation. One suture was enough in this case to give a perfect anatomical and functional result. Drainage was prolonged and direct for two weeks through a perineal tube and later through an indwelling catheter. Incidentally, it may be mentioned that during the somewhat prolonged febrile period through which this patient passed, an agglutination test for undulant fever was made by Dr. George Ives which proved negative. Cultures from urine showed bacillus coli and staphylococcus. Of course, this patient will have to have a sound passed occasionally to detect the possible beginning of stricture formation. At first, a sound was passed once a week; later, every two weeks and finally once a month. This interval can be prolonged and if he shows no tendency to contract it is quite possible, in fact I think probable, that at the end of a year or so he will be able to get along without the sound altogether.

Exchange National Bank Building.

In spite of the apparently clearly defined cases in which descent of a cryptorchid testis occurred during the administration of pregnancy urine extracts, much skepticism has been expressed by physicians as to the efficacy of this form of therapy. Accordingly, Bruce Webster, New York (*Journal A. M. A.*, June 15, 1935), presents additional cases in the hope of establishing further the rationale of the procedure and providing additional data as to dosage.

NEW GROWTH OF DESCENDING COLON AND UPPER PART OF SIGMOID FLEXURE

AN ETIOLOGICAL FACTOR IN THE CAUSE OF ACUTE INTESTINAL OBSTRUCTION

FRANK J. SMITH, M.D.

ST. LOUIS

New growth of the descending colon and upper part of the sigmoid flexure as the cause of acute intestinal obstruction is more common in my hands than is discussed in most journals and textbooks.

Over a period of fifteen years I have had a number of these cases. Patients gave a history of chronic constipation for a period of about eighteen months, practically no pain, no loss of weight and the blood findings practically negative. The one thing that has helped me to clear up the diagnosis in most of the cases is a complete gastro-intestinal examination with a barium enema, often giving the characteristic findings that we are all familiar with. Another point is an unusual delay of the barium in the large intestines when the obstruction is not marked.

In a patient with a history of chronic constipation for one or two years developing sudden symptoms of acute intestinal obstruction, we should think of a new growth in the descending colon or the upper part of the sigmoid flexure. It is not so common in the rectum. It has been my experience that a barium enema will often clear up the case.

In patients giving a history of the symptoms mentioned, if a barium enema is given we are often able to make a diagnosis at once. Early operation avoids intoxication, thus eliminating one of the common and most important etiological factors causing death. Another advantage in early operation is that we can often resect the mass entirely and reunite the continuity of the intestines with very little danger to the patient which, in my opinion, is preferable to a colostomy; hence the importance of early diagnosis.

One particular case I would like to mention. After resecting the mass and examining the specimen it was almost impossible to insert an ordinary curved hemostat through the opening. It is remarkable how these patients can carry on for a length of time in fairly good health with such a small lumen in the intestine. In the majority of cases I was able to resect the mass in a one-stage operation and do a side-to-side or end-to-end anastomosis with the most pleasing results.

In the majority of these cases, on opening the abdomen the large intestine is found very much distended. The colon tube is left in the rectum for a few days after the operation, being removed occasionally to give the patient rest. A large drain is placed in the region where the mass was resected and a drain is also placed in the pelvis. I often leave the tube in the rectum from thirty-six to forty-eight hours. The patient is given about 3000 cc. normal saline hypodermically, and about 1000 cc. glucose intravenously every twenty-four hours. This is continued for three or four days, nothing being given by mouth before this time. It is my opinion that putting the intestines at rest is a very essential part of the postoperative treatment in these cases.

SUMMARY

1. Patients giving a history of chronic constipation should have a gastro-intestinal examination with a barium enema; this often clears up the diagnosis.

2. In patients giving a history of chronic constipation and developing acute abdominal symptoms of intestinal obstruction, a new growth in the descending colon or the upper part of the sigmoid flexure should be thought of at once.

3. Immediate operation before the patient becomes toxic from intestinal stasis often

enables the removal of the mass in a one-stage operation and an anastomosis with very little shock. This is preferable to colostomy.

4. Another important fact is that these patients have marked obstruction, as shown in the case mentioned, and also have practically no pain, have lost no weight and have no symptoms other than chronic constipation and acute obstructive symptoms.

This particular case gave a history of constipation for a number of years and then suddenly developed acute obstructive symptoms. The patient was operated on within a few hours after developing these symptoms.

4930 Lindell Boulevard.

MENTAL CHANGES ASSOCIATED WITH PERNICIOUS ANEMIA

C. W. Osgood, Wauwatosa, Wis. (Journal A. M. A., June 15, 1935), gives the following arguments against pernicious anemia being the primary cause of an associated psychosis: 1. There is very often a family history or personal past history of mental disease. 2. The psychoses present no characteristics that clearly distinguish them from endogenous depressions or other well recognized mental disorders. 3. Mental improvement, when present, does not parallel the physical. 4. Necropsy shows no consistent relation between the pathologic changes in the brain and the psychosis. Aside from mere association, the chief argument for the pernicious anemia having a causal relationship to the psychosis is the frequent occurrence of an "anxious-paranoid" picture, which, as Francke says, "has been too often described in association with pernicious anemia to be a coincidence." The proponents of the theory that pernicious anemia is an important factor in the production of the associated psychosis admit that there is often no mental improvement under liver treatment but attribute this, as in the case of persistent cord symptoms, to the existence of irreversible pathologic changes. From a study of seventy-six cases of pernicious anemia he finds little unequivocal evidence to support the assumption that pernicious anemia can cause psychoses or that mental changes may be a manifestation of pernicious anemia in the same sense as may neurologic changes. Few patients with pernicious anemia develop psychoses, and, of those who do, almost half have a predisposition to mental illness as indicated by the family or past history. While a few of the cases might lead one to think that there is a close correlation between the physical and mental changes, the evidence is far from being conclusive. Failure of the mental symptoms to improve might be due in some instances to complications such as arteriosclerosis and in others may be explained on the theory of irreversible pathologic changes, but one would expect those cases in which the psychosis did clear to show a closer correlation between the physical and the mental improvement. The majority of the reported psychoses associated with pernicious anemia are of the anxious-paranoid type, but this does not necessarily indicate an etiologic relationship. The preponderance of acute over chronic types of psychoses may be only apparent, since the association of pernicious anemia with chronic psychoses would probably be presumed to be incidental and would not lead to the reporting of such cases.

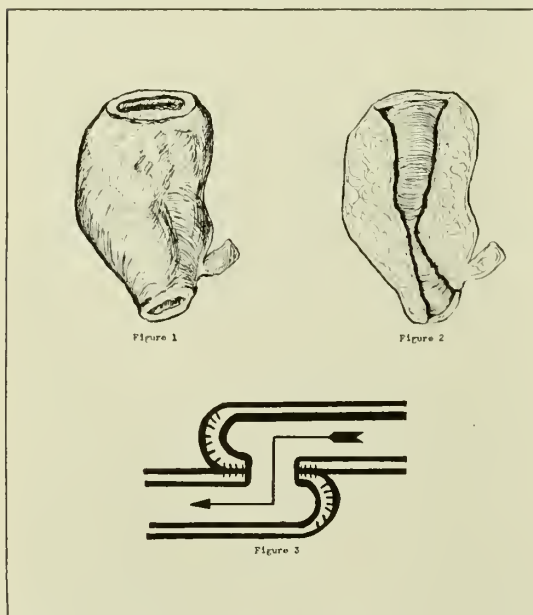


Fig. 1. The mass in the sigmoid flexure.

Fig. 2. The mass that was removed. Note the very small opening in the lumen of the intestine showing the seeming impossibility for the bowel contents to pass through this opening.

Fig. 3. The anastomosis completed and the intestine where the mass was taken out. Patient has been apparently free from all symptoms since the operation.

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JULY, 1935

EDITORIALS

ROSS A. WOOLSEY, M.D.

PRESIDENT-ELECT, MISSOURI STATE MEDICAL
ASSOCIATION, 1935-1936

Dr. Ross A. Woolsey, St. Louis, was chosen President-Elect of the Missouri State Medical Association by the House of Delegates at the Excelsior Springs Session, May 6 to 10, 1935. Dr. Woolsey will serve as President-Elect during 1935-1936 and as President during 1936-1937.

Dr. Woolsey was born December 23, 1877, in Knoxville, Illinois, where he spent his early years and attended the elementary schools. After completing his academic education he taught school for four years.

In 1900 Dr. Woolsey went to St. Louis and entered the St. Louis University School of Medicine where he received his degree in medicine in 1904. He interned at the Frisco Employees' Hospital at Springfield for two years. When the Frisco Employees' Hospital was opened in St. Louis, Dr. Woolsey returned to St. Louis as house surgeon of that hospital. He became surgeon in charge of the St. Louis hospital in 1910 and in 1920 was appointed chief surgeon of the Frisco Railway and the Frisco Employees' Hospital Association.

Dr. Woolsey has been active in organized medicine since early in his career. He has been a loyal member of the St. Louis Medical Society and the State Medical Association and has served in several official capacities. He has been chairman of the Committee on Medical Education and Hospitals of the State Association since 1927. Dr. Woolsey was elected Treasurer of the Association in 1933 and served in that capacity until the Excelsior Springs Session. He was at one time treasurer of the St. Louis Medical Society.



ROSS A. WOOLSEY, M.D.

Dr. Woolsey was married to Miss Mary Ricard Beck in 1912. There are two children, a daughter, Anne Beck, and a son, Ross A., Jr.

In addition to the city and state organizations and the American Medical Association, Dr. Woolsey holds membership in the St. Louis Clinics, St. Louis Surgical Society, Western Surgical Association, Southern Surgical Association, American College of Surgeons, Southern Medical Association, Association of Railway Chief Surgeons and the American Association of Railway Surgeons. Among medical articles which Dr. Woolsey has written are those entitled "Malta Fever," "Fractures and Splints," "The Country Doctor," "Focal Infections," "The Acute Abdomen," "Foreign Body in Stomach," "Inguinal Hernia," "Intraspinal Block," "Nonrotation of Midgut" and "Amebic Abscess of the Liver."

Dr. Woolsey is well known by members throughout the state and is well qualified to be the leader of the medical profession in Missouri.

ATLANTIC CITY SESSION OF THE
AMERICAN MEDICAL ASSOCIATION

One of the most interesting phases to Missouri members of the Atlantic City Session of the American Medical Association was the selection of Kansas City as the place of meeting for 1936. Kansas City and the Jackson County Medical Society have planned diligently for this meeting. The plans of the new Municipal Auditorium now in process of completion were changed to meet the exacting requirements for the sixteen section meetings and the extensive scientific and commercial exhibits. This will be the first session of the American Medical Association to be held in Kansas City. Several sessions have been held in St. Louis, notably in 1854, 1873, 1886, 1910 and 1922. Kansas City is splendidly equipped to entertain this large gathering both from the standpoint of adequate hotel facilities and accommodations for the sessions of the House of Delegates, scientific assemblies and the commercial and scientific exhibits. We know that members in Jackson County will provide entertainments of a character that will reflect credit upon the members of our Association in that metropolis and leave such pleasant recollections of the hospitality of the city and county that the Association will not hesitate to make a return visit in the not far distant future.

The following officers were elected at the Atlantic City Session which convened June 10 to 14: President-Elect, Dr. J. Tate Mason, Seattle, Washington; Vice President, Dr. Kenneth M. Lynch, Charleston, South Carolina; Secretary, Dr. Olin West, Chicago (reelected); Treasurer, Dr. Herman L. Kretschmer, Chicago (reelected); Speaker of the House of Delegates, Dr. Nathan V. Van Etten, New York; Vice Speaker of the House of Delegates, Dr. H. H. Shoulders, Nashville, Tennessee; Board of Trustees (terms expire 1940), Dr. Ralph A. Fenton, Portland, Oregon, and Dr. James R. Bloss, Huntington, West Virginia; Judicial Council, Dr. George E. Follansbee, Cleveland (reelected). Dr. James S. McLester, Birmingham, Alabama, was installed as President.

Dr. Jonathan Campbell Meakins, Montreal, Canada, was installed as president of the Canadian Medical Association which convened with the American Medical Association. This is the first time the two organizations have met together. All sessions were held jointly.

With one exception all Delegates from Missouri were present and in attendance at

all sessions. Dr. W. H. Breuer, St. James, was unable to attend because of sickness in his family, and Dr. E. H. Skinner, Kansas City, the alternate, represented Missouri in his stead.

Registration for the five days totaled 8294. Approximately 350 scientific contributions were presented.

Outstanding among approximately two hundred scientific exhibits were one on "Diabetes," supervised by Dr. Elliott P. Joslin, Boston, and Dr. Frederick Grant Banting, Toronto; one on "Nutrition" supervised by Dr. Reginald Fitz, Boston; "Prevention of Asphyxial Death," Dr. Chevalier Lawrence Jackson, Philadelphia, and "Vaccines and Serums," Dr. Ralph Chester Williams, Washington.

The Osler Oration and the Billings Lecture are two addresses looked forward to by members, not only because of their practical value but also because of the tribute to the men who are selected to deliver the addresses and the honor to the decedents, Osler and Billings. Dr. Lewellys Franklin Barker, successor to Osler as physician-in-chief of the Johns Hopkins Hospital, presented the Osler Oration, and Dr. Emanuel Libman, professor of clinical medicine at Columbia University, New York, presented the Billings Lecture.

Some of the actions of the House of Delegates were (1) condemning state medicine and compulsory sickness insurance; (2) approving voluntary sickness insurance under control of the county medical society; (3) the appointment of a committee to investigate birth control; (4) tightening the rules inhibiting solicitation of patients particularly in industrial practice and unfair competition of clinics and groups, and (5) condemning unethical and unlawful practice of medicine by hospitals, dispensaries, insurance companies and universities.

RADIO ADVERTISING

Organized medicine has attempted to promote health education by radio and to prevent the advertising of fraudulent products over the radio. The House of Delegates of the American Medical Association adopted resolutions in 1933 and 1934 opposing misleading radio broadcasting. In pursuance of this action Dr. W. W. Bauer, Director of the Bureau of Health and Public Instruction, and Dr. Arthur J. Cramp, Director of the Bureau of Investigation, appeared before the hearings conducted by the Federal Com-

munications Commission in Washington on May 15.

Progress has been slow but it is encouraging that there has been progress. The standard of material permitted to be broadcast over the network of the National Broadcasting Company has slowly but consistently been elevated. Recently an announcement made by the president of the Columbia Broadcasting System indicates that its network will be cleared of much objectionable advertising. Among the policies adopted by that company is the barring of broadcasting for any product that describes graphically or repellantly any internal functions or symptomatic results of internal disturbances of the human body. This would exclude the advertising of all laxatives as such and laxative qualities in other products. Testimonials that cannot be authenticated will be barred and an attempt will be made to exclude all claims that are false and unwarranted.

Such results are far from all the profession wants but they are steps in a good direction.

FOURTH OF JULY ACCIDENTS

It is estimated that there were four million accidents in homes in the United States during the last twelve months and twenty-four thousand persons lost their lives through this cause alone. Advancement in medical science has been great in recent years but preventive medicine counts for absolutely nothing in such fatalities; caution and reasonable care are the only antidotes for the present large number of home accidents.

There is one day each year on which the physician feels especially helpless, i. e., the Fourth of July which always brings many accidents, the great majority of them unnecessary. The physicians may warn and have done so for years. They have even promoted legislation against the use of Fourth of July explosives; but each year they must sit by inactively knowing full well that some citizens will be blinded, mutilated, maimed or crippled through the careless handling of explosives on this national holiday.

NEWS NOTES

Dr. Frank H. Ewerhardt, St. Louis, was a discussor of a paper on "Passive Vascular Exercise in the Treatment of Peripheral Vascular Disease" at the thirteenth annual meeting of the Academy of Physical Medicine, Atlantic City, June 12 and 13.

Dr. J. Harvey Jennett, Kansas City, presented a paper on "Autopsies: Their Value and How to Obtain Them," at the regional meeting of the American Hospital Association in Colorado Springs on June 6 and 7.

Dr. Frank M. Postlethwaite, Kansas City, held an afternoon clinic at the Community Hospital, Beloit, Kansas, on May 1, and in the evening addressed the hospital staff on "Treatment of Rectal Diseases by Office Procedure."

Dr. Thomas G. Orr, Kansas City, was a guest of the Minnesota State Medical Association which met in joint session with the medical section of the American Association for the Advancement of Science in Minneapolis June 23 to 27. Dr. Orr presented an address on "Venoclysis: A Consideration of Its Possible Dangers."

The annual convention of the American Hospital Association will be held in St. Louis, September 29 through October 4, 1935. Dr. Louis H. Burlingham, St. Louis, superintendent of Barnes Hospital, is chairman of the local committee on arrangements. More than 1000 delegates are expected to attend the various sessions which will be held in the Municipal Auditorium.

Work on remodeling, modernizing and fireproofing old structures at the state's eleemosynary and penal institutions will be started soon, according to an announcement made May 28 by the bipartisan advisory board of the state building commission. The board has approved construction of two new ward units at the Fulton Hospital. Recommendation on extensive work at the Farmington Hospital has been submitted.

Members of the class of 1910 of the Washington University School of Medicine celebrated the twenty-fifth anniversary of their graduation at a meeting held in St. Louis, June 10 and 11. On June 10 a stag dinner was given at the University Club and on June 11 there was a dinner at the Park Plaza Hotel for members of the class and their families. Following the dinner the group attended the performance of "Rio Rita" at the Municipal Opera. Entertainment during the two days included attendance at clinics at the Barnes Hospital group, golf and baseball. Thirty of the fifty living members of the class attended.

Drs. Wallis Smith, Souter Smith and Francis B. Camp, Springfield, were guests of the Ninth Councilor District of the Arkansas Medical Society at a meeting at Mountain Home, Arkansas, June 4. Dr. Wallis Smith discussed "Infections of the Hand"; Dr. Souter Smith spoke on "Cataract Surgery in India," and Dr. Camp gave a talk on "Heart Diseases."

Approximately two hundred physicians from Missouri, Arkansas, Oklahoma and Kansas attended a one-day session conducted by the Joplin Clinical Society in Joplin on May 28. The morning was devoted to clinics and operations in the Freeman and St. John's hospitals. Two sessions were held simultaneously at the Connor Hotel in the afternoon. All presentations were made by Joplin physicians with the exception of an address presented at a dinner meeting by Dr. W. H. Olmstead, St. Louis, on "Diabetes." An entertainment followed the dinner.

A reunion of the class of 1895 of the Missouri Medical College, St. Louis, was held June 15 and 16 at Wildwood Springs Hotel, Steelville, Missouri. The exercises lasted twenty-four hours, and with the exception of a few hours of sleep each member was busy every minute. The original class numbering sixty-five has dwindled to thirty-six members and about half of this number were present, some accompanied by their families.

Dr. R. J. Terry, St. Louis, acted as toastmaster; Dr. R. E. Schlueter, St. Louis, gave a history of the class; Dr. John Zahorsky, St. Louis, read a poem "Forty Years Ago," and Dr. M. George Gorin, St. Louis, gave some interesting reminiscences.

Besides the members mentioned others who attended were Drs. Chas. G. C. Ahlbrandt, Kirkwood, Missouri; Chas. E. F. Streutker, St. Louis; A. T. Quinn, St. Louis; H. V. Horstman, Murphysboro, Illinois; J. H. McNutt, Hammond, Illinois; E. P. Staff, Ramsey, Illinois; Isaac N. Shannon, Fredericktown, Missouri; A. H. Thornburgh, West Plains, Missouri; Wm. A. Folleson, Eufaula, Oklahoma; J. W. Winn, Higbee, Missouri, and W. M. Munsell, Grand View, Washington.

The following officers were elected: President, Dr. R. E. Schlueter, St. Louis; vice president, Dr. John Zahorsky, St. Louis, and secretary, Dr. R. J. Terry, St. Louis. The class voted to have a reunion and outing together every year sometime in June.

The Kentucky State Medical Association dedicated a monument to Jane Todd Crawford, heroine of the first ovariectomy, at McDowell Park, Danville, Kentucky, on May 30. Of this dedication and of the operation the June 10 issue of *Time* gives the following graphic description:

This is the only recorded tribute of its kind, commemorating as it does the first successful removal of an ovarian tumor. That operation in turn marked the real beginning of abdominal surgery in the United States.

Late in 1809 Dr. Ephraim McDowell, 38, of Danville, best surgeon west of Philadelphia, received a call to Greentown, sixty miles across country, to deliver a Mrs. Jane Todd Crawford. Dr. McDowell, a big, vigorous man, rode over to Greentown. Two attending physicians assured him that Mrs. Crawford carried twins. He made an examination *per vaginam*, soon ascertained that she was not pregnant but had a large tumor in the abdomen which moved easily from side to side.

Said candid Dr. McDowell: "Madam, I can do you no good. Your situation is deplorable. John Bell, Hunter, Hey and A. Wood, four of the first and most eminent surgeons in England and Scotland, have uniformly declared in their lectures that such is the danger of peritoneal inflammation, that opening the abdomen to extract a tumor is inevitable death. Notwithstanding this, if you think yourself prepared to die, I will take the lump from you, if you can come to Danville."

Dr. McDowell thereupon rode back to his two-story wooden mansion at Danville whither Mrs. Crawford soon followed, on horseback.

Dr. McDowell was a devout Episcopalian. He preferred to operate on Sundays so that the prayers of the patient and friends would guide his knives, forceps and needles. For extra heavenly help during the death-defying operation on Mrs. Crawford, he waited for Christmas Day which that year fell on Sunday.

The day was chilly. One of Dr. McDowell's Negro servants got up a roaring fire in the big downstairs room where he operated. Another put a mattress and a clean sheet on a long wooden table, a couple of wooden buckets alongside and on a side table a basin of warm water. Handy were the heavy knives and other instruments Dr. McDowell operated with, the bayonet-like needles, silver suture wire, waxed thread for ligatures. Nothing was sterilized, for Lister's and Pasteur's work was still sixty to seventy years in the future.

Mrs. Crawford entered, flipped up her skirt and petticoats, stretched out on the table. Two of Dr. McDowell's surgical assistants strapped her to the table lest her painful writhings inconvenience the surgeon. (A generation was to pass before the coming of modern anesthetics.) Dr. McDowell's nephew William assisted by holding Mrs. Crawford's hands.* One of the doctors held her feet.

Dr. McDowell entered the operating room, threw his hat, cane and coat on a chair, rolled up his sleeves, prayed: "Direct me, Oh God, in performing this opera-

*Andrew Jackson similarly held the hands of a Mrs. Overton of Nashville while Dr. McDowell cut through four inches of abdominal tissues to remove her diseased ovaries. Dr. McDowell asked \$500, got \$1,500 and an "elegant carriage" with a span of Kentucky-blooded horses and two slaves, largest fee on record up to 1822. There is no public record of who held the hands of James K. Polk when Dr. McDowell repaired a rupture and removed a stone from the future President's bladder.

tion for I am but an instrument in Thy hands and am but Thy servant. If it is Thy will, spare this afflicted woman."

Thereupon Dr. McDowell cut into Mrs. Crawford's flinching side. Instantly her intestines poured through the opening, uncoiled on the table. Dr. McDowell attacked the tumorous ovary, cut it free, threw it into a bucket. It weighed, he later determined, 22½ pounds.

Thirty minutes elapsed before Dr. McDowell was ready to gather Mrs. Crawford's intestines together and replaced them in her abdomen. By that time they had become so cold that he "thought proper to bathe them in tepid water previous to replacing them." He then deftly stitched up the wound. In twenty-five days the first woman ever to undergo an ovariectomy was "perfectly well." She lived thirty-three years thereafter, had a son who became mayor of Louisville.

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

The Cutler Laboratory

Solution Dextrose U. S. P. 2½% in Physiological Solution of Sodium Chloride in Saftiflask Containers

Solution Dextrose U. S. P. 5% in Physiological Solution of Sodium Chloride in Saftiflask Containers

Solution Dextrose U. S. P. 10% in Physiological Solution of Sodium Chloride in Saftiflask Containers

Solution Dextrose U. S. P. 20% in Fractionally Distilled Water in Saftiflask Containers

Solution Dextrose U. S. P. 25% in Fractionally Distilled Water in Saftiflask Containers

Merck & Co., Inc.

Ephedrine Alkaloid (Hemihydrate)

Ephedrine Hydrochloride

Ephedrine Sulphate

The National Drug Co.

Ampul Solution of Dextrose, 10 Gm., 20 cc.

Ampul Solution of Dextrose, 25 Gm., 50 cc.

Ampul-Vial Solution of Dextrose, 25 Gm., 50 cc.

Ampul-Vial Solution of Dextrose, 50 Gm., 100 cc.

E. R. Squibb & Sons

Refined Diphtheria Toxoid Alum Precipitated, one 1 cc. vial package

Refined Diphtheria Toxoid Alum Precipitated, ten 1 cc. vials package

Refined Diphtheria Toxoid Alum Precipitated, one 10 cc. vial package

Sterisol Ampoule Corporation

Sterisol Ampoule Dextrose 5% in Physiological Solution of Sodium Chloride

Upsher Smith Company

Pyrethrum Ointment

Wallace & Tiernan Products, Inc.

Azochloramid

Azochloramid Buffered Saline Mixture (For Preparing 1 Liter of a 1:3300 Aqueous Solution)

Azochloramid Buffered Saline Mixture (For Preparing 1 Gallon of a 1:3300 Aqueous Solution)

Azochloramid Buffered Saline Mixture (For Preparing 1 Liter of a 1:1600 Aqueous Solution)

Azochloramid Buffered Saline Mixture (For Preparing 1 Gallon of a 1:1600 Aqueous Solution)

Azochloramid in Triacetin 1:500

Winthrop Chemical Co., Inc.

Ampules Sterile Crystals Novocain for Spinal Anesthesia, 50 mg.

Ampules Sterile Crystals Novocain for Spinal Anesthesia, 100 mg.

Ampules Sterile Crystals Novocain for Spinal Anesthesia, 120 mg.

Ampules Sterile Crystals Novocain for Spinal Anesthesia, 150 mg.

Ampules Sterile Crystals Novocain for Spinal Anesthesia, 200 mg.

Ampules Sterile Solution Novocain 20 per cent, 1.5 cc.

Ampules Sterile Solution Novocain 20 per cent, 5 cc.

Ampules Sterile Solution Novocain 20 per cent with 1-Suprarenin Synthetic Bitartrate 1:9000, 1.5 cc.

Ampules Sterile Solution Novocain 20 per cent with 1-Suprarenin Synthetic Bitartrate 1:9000, 5 cc.

Ampules Novocain Solution 1 per cent, 2 cc.

Ampules Novocain Solution 1 per cent with 1-Suprarenin Synthetic Bitartrate 1:50,000, 2 cc.

Ampules Novocain Solution 1 per cent with 1-Suprarenin Synthetic Bitartrate 1:50,000, 6 cc.

Ampules Novocain Solution 2 per cent with 1-Suprarenin Synthetic Bitartrate 1:50,000, 1 cc.

Ampules Novocain Solution 2 per cent with 1-Suprarenin Synthetic Bitartrate 1:20,000, 1 cc.

Ampules Novocain Solution 2 per cent with 1-Suprarenin Synthetic Bitartrate 1:50,000, 3 cc.

Ampules Novocain Solution 2 per cent with 1-Suprarenin Synthetic Bitartrate 1:20,000, 3 cc.

Ampules Novocain Solution 2 per cent

with 1-Suprarenin Synthetic Bitartrate 1:20,000, 6 cc.

Novocain (0.08 Gm.) and 1-Suprarenin Synthetic Bitartrate (0.06 mg.) Hypodermic Tablets

Ampules Ephedrine-Novocain Solution, 1 cc.

Ampules Ephedrine-Novocain Solution, 2 cc.

Tablets Novocain, 1 grain

Tablets Novocain 0.01 Gm. with 1-Suprarenin Synthetic Bitartrate 0.2 mg.

The following products have been accepted for inclusion in the List of Articles and Brands Accepted by the Council But Not Described in N. N. R. (New and Non-official Remedies, 1935, p. 445):

The Cutter Laboratory

Physiological Solution of Sodium Chloride in 500 cc. size Saftiflask Containers

Sterisol Ampoule Corporation

Sterisol Ampoule Physiological Solution of Sodium Chloride

United States Standard Products Co.

Ampoule Solution Quinine and Urea Hydrochloride 0.5 Gm., 1 cc.

OBITUARY

A. H. W. SULLIVAN, M.D.

Dr. A. H. W. Sullivan, Miami, a graduate of the Marion-Sims College of Medicine, St. Louis, 1897, died at his home May 10 of heart disease, aged 93 years.

Dr. Sullivan was born about eight miles from Miami and spent his life in that community with the exception of time spent in study and as a soldier in the Civil War. It was while in the army that his interest in surgery and medicine began. He studied first at the College of Physicians and Surgeons, Keokuk, Iowa, being graduated from that school in 1871. He later received a degree from the St. Louis College of Physicians and Surgeons before attending and receiving a degree in medicine at the Marion-Sims College of Medicine.

Dr. Sullivan was a member of the medical corps during the World War. He was a charter member of the Saline County Medical Society. He retired from active practice several years previous to his death but continued to be interested in organized medicine and read the latest medical books and journals.

He had a wide variety of interests. He had a retentive memory and had furnished many historical facts about Saline County. He kept a diary and a weather record for a great number of years.

Dr. Sullivan was a citizen of the highest type and the community and the medical profession have lost a member of strong character.

He is survived by his widow, Mrs. Dollie Sullivan, one daughter and five sons, two of the sons being Dr. Francis Sullivan and Dr. Hazard Sullivan, Miami.

WM. H. POPPLEWELL, M.D.

Dr. W. H. Popplewell, Lamar, a graduate of Barnes Medical College, St. Louis, 1898, died of heart disease

at his home April 21, aged 61 years. He had suffered a slight cerebral hemorrhage on December 3 but continued with his practice.

Dr. Popplewell was born in Montevallo in Vernon County, the son of the late Dr. S. G. Popplewell. After he had completed his medical education he returned to Montevallo and entered practice with his father. After two years he moved to Sheldon where he practiced for twenty-four years. In 1924 he moved to Lamar where he remained in active practice until a few days before his death.

He became allied with organized medicine early in his career. He had served as secretary of the Barton County Medical Society since 1926 and was delegate to the Annual Session in 1934. He was always interested in the affairs of the community. He served two terms on the Lamar school board and was at one time president of the Lamar Chamber of Commerce, refusing reelection to both offices.

Dr. Popplewell was devoted to his practice and knowing that the only way to prolong his life was to give up his practice he nevertheless continued to be in his office every day and to answer the calls of the sick.

Dr. Popplewell is survived by his widow, Mrs. Annie Popplewell, one son and one daughter.

CAT.

WILLIAM DANIEL WEBB, M.D.

Dr. William D. Webb was born April 7, 1876, at Harris, Missouri, and died May 8, 1935, in South St. Joseph, Missouri. He was buried in Belmont Cemetery, Wathena, Kansas, May 11, 1935.

Dr. Webb received his common school education in Sullivan County, Missouri, near Harris. He attended William Jewell College in Liberty. He was graduated in medicine from the Ensworth Medical College, St. Joseph, in 1909 and took a postgraduate course at Tulane University School of Medicine in New Orleans in 1915.

He started his practice in Wathena, Kansas, in 1909, remaining there for six years. From there he moved to Atchison, Kansas, in 1915, and remained there until 1919 at which time he moved to St. Joseph. He practiced part of the time in South St. Joseph.

Dr. Webb was honest and upright in every respect. He was a member of the Baptist Church at Milan, Missouri. He was ever faithful to his calling, that of a physician. He was always fair in all his dealings and he had great esteem for the dignity of his profession.

The Buchanan County Medical Society deeply regrets the death of one of their respected and esteemed members.

CHARLES GEIGER, M.D.

H. S. CONRAD, M.D.

C. H. WERNER, M.D.

Nelson W. Baker, Rochester, Minn. (Journal A. M. A., June 15, 1935), states that in cases of peripheral occlusive arterial disease, the toes are extremely vulnerable and gangrene may easily be induced by even mild degrees of injury. In a series of 171 cases in which gangrene was associated with thromboangiitis obliterans, the gangrene followed therapeutic procedures on the toes in sixty (35 per cent), and in a series of 115 cases in which the gangrene was associated with arteriosclerosis obliterans, the gangrene followed therapeutic procedures in forty-five (39 per cent). These procedures consisted chiefly of removal of ingrown toenails; less commonly they consisted of removal of corns, incisions for suspected abscesses, thermal burns, and irritations resulting from the application of strong chemicals or exfoliating ointments.

CAT.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1935

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Ste. Genevieve County Medical Society,
December 12, 1934.
Chariton County Medical Society, Janu-
ary 3, 1935.
Perry County Medical Society, January 4,
1935.
Moniteau County Medical Society, Janu-
ary 10, 1935.
Camden County Medical Society, Febru-
ary 26, 1935.
Schuyler County Medical Society, March
18, 1935.
Lewis County Medical Society, April 2,
1935.
Holt County Medical Society, April 18,
1935.
Pike County Medical Society, May 15,
1935.
Saline County Medical Society, May 21,
1935.

MISSOURI STATE MEDICAL ASSOCIATION

Seventy-Eighth Annual Session,
Excelsior Springs
May 6, 7, 8, 9, 1935

MINUTES OF THE HOUSE OF DELEGATES

Elms Hotel, Monday, May 6, 1935

Morning Session

The first meeting of the House of Delegates of the
Seventy-Eighth Annual Session of the Missouri State
Medical Association, held in the Ballroom of the Elms
Hotel, Excelsior Springs, convened at 9:30 a. m., Mon-
day, May 6, 1935, the President, Dr. C. T. Ryland,
Lexington, presiding.

At roll call 114 officers and delegates responded as
follows:

Officers

President.....C. T. Ryland, Lexington
President-Elect...E. Lee Miller, Kansas City
Vice President...D. S. Conley, Columbia
Secretary-Editor..E. J. Goodwin, St. Louis
Assistant Secretary E. H. Bartelsmeyer, St. Louis
Treasurer.....R. A. Woolsey, St. Louis

Councilors

1st District.....O. C. Gebhart, Oregon
2nd District.....W. T. Elam, St. Joseph
4th District.....J. B. Wright, Trenton
6th District.....J. S. Gashwiler, Novinger
7th District.....W. D. Pipkin, Monroe City
8th District.....B. K. Stumberg, St. Charles
9th District.....A. R. McComas, Sturgeon
10th District.....Chas. H. Dixon, Moberly
11th District.....J. H. Timberman, Chillicothe
12th District.....Spence Redman, Platte City
13th District.....E. P. Heller, Kansas City
14th District.....W. A. Braecklein, Higginsville

15th District.....L. J. Schofield, Warrensburg
17th District.....Guy Titsworth, Sedalia
18th District.....E. C. Shelton, Eldon
20th District.....C. H. Neilson, St. Louis
21st District.....N. W. Jarvis, Festus
25th District.....P. S. Tate, Farmington
26th District.....W. H. Breuer, St. James
27th District.....J. C. B. Davis, Willow Springs
29th District.....R. M. James, Joplin
30th District.....R. B. Denny, Creve Coeur
31st District.....H. A. Lowe, Springfield

Delegates

COUNTY

DELEGATE

Audrain.....J. F. Jolley, Mexico
Barry.....W. M. West, Monett
Bates.....R. H. Smith, Rich Hill
Benton.....Harry Bay, Cole Camp
Boone.....F. G. Nifong, Columbia
Buchanan.....W. T. Stacy, St. Joseph
Buchanan.....W. H. Minton, St. Joseph
Butler.....H. M. Hendrickson, Poplar Bluff
Caldwell-
Livingston.....D. M. Dowell, Chillicothe
Callaway.....T. S. Lapp, Fulton
Cape Girardeau...B. W. Hays, Jackson
Carroll.....E. E. Brunner, Carrollton
Carter-Shannon...T. W. Cotton, Van Buren
Christian.....H. J. Wise, Sparta
Clay.....E. B. Robichaux, Excelsior Springs
Clinton.....W. B. Spalding, Plattsburg
Cooper.....W. E. Stone, Boonville
Daviss.....Robt. Thompson, Jamesport
Dent.....F. E. Butler, Salem
Franklin.....Frank G. Mays, Washington
Greene.....Paul Cole, Springfield
Greene.....Joseph D. James, Springfield
Grundy.....Wm. Fuson, Trenton
Henry.....G. S. Walker, Clinton
Howard.....W. A. Bloom, Fayette
Howell-Oregon...P. D. Gum, West Plains
Jackson.....C. Edgar Virden, Kansas City
Jackson.....J. Milton Singleton, Kansas City
Jackson.....Carl Ferris, Kansas City
Jackson.....John Aull, Kansas City
Jackson.....A. Morris Ginsberg, Kansas City
Jackson.....Emsley T. Johnson, Kansas City
Jackson.....George Thiele, Kansas City
Jackson.....R. Lee Hoffmann, Kansas City
Jackson.....Ralph R. Wilson, Kansas City
Jackson.....Homer A. Beal, Kansas City
Jackson.....John H. Ogilvie, Kansas City
Jasper.....L. C. Chenoweth, Joplin
Jasper.....Edward James, Joplin
Lafayette.....F. W. Mann, Wellington
Lewis.....P. W. Jennings, Canton
Marion-Ralls....Edward Roselle, Hannibal
Marion-Ralls....Joel Hardesty, Hannibal
Miller.....W. L. Allee, Eldon
Mississippi.....A. H. Marshall, Charleston
Moniteau.....J. P. Burke, California
Newton.....J. A. Guthrie, Neosho
Nodaway.....W. R. Jackson, Maryville
Pettis.....F. B. Long, Sedalia
Phelps.....R. E. Breuer, Newberg
Pike.....E. A. Cunningham, Louisiana
Platte.....L. C. Calvert, Weston
Randolph-Monroe F. L. McCormick, Moberly
Ray.....L. D. Greene, Richmond
St. Charles.....B. G. Gossow, St. Charles
St. Francois-Iron-
Madison-
Washington....W. H. Barron, Fredericktown

| COUNTY | DELEGATE |
|---------------------|-------------------------------|
| Ste. Genevieve..... | A. E. Sexauer, Ste. Genevieve |
| St. Louis..... | John D. Hayward, St. Louis |
| St. Louis..... | R. E. Gaston, Webster Groves |
| St. Louis..... | J. O'Connell, St. Louis |
| St. Louis City..... | E. Lee Dorsett, St. Louis |
| St. Louis City..... | Edgar W. Spinzig, St. Louis |
| St. Louis City..... | John McH. Dean, St. Louis |
| St. Louis City..... | L. P. Gay, St. Louis |
| St. Louis City..... | C. E. Burford, St. Louis |
| St. Louis City..... | R. V. Powell, St. Louis |
| St. Louis City..... | M. J. Pulliam, St. Louis |
| St. Louis City..... | J. Paul Altheide, St. Louis |
| St. Louis City..... | H. A. Hassett, St. Louis |
| St. Louis City..... | John Smith Young, St. Louis |
| St. Louis City..... | Alphonse McMahon, St. Louis |
| St. Louis City..... | J. M. Keller, St. Louis |
| St. Louis City..... | V. V. Wood, St. Louis |
| St. Louis City..... | Neil S. Moore, St. Louis |
| St. Louis City..... | Curtis H. Lohr, St. Louis |
| St. Louis City..... | E. Horace Johnson, St. Louis |
| St. Louis City..... | Francis Reder, St. Louis |
| St. Louis City..... | C. F. Vohs, St. Louis |
| Saline..... | L. S. James, Blackburn |
| Scott..... | E. J. Neinstedt, Blodgett |
| Stone..... | H. L. Kerr, Crane |
| Sullivan..... | W. Herington, Green City |
| Texas..... | L. M. Edens, Cabool |
| Vernon-Cedar..... | C. B. Davis, Walker |
| Wright-Douglas..... | H. G. Frame, Mountain Grove |

On motion of Dr. O. C. Gebhart, Oregon, duly seconded, the reading of the minutes of the previous meeting was dispensed with and adopted as printed in THE JOURNAL.

The President, Dr. C. T. Ryland, Lexington, read his message and recommendations as follow:

PRESIDENT'S MESSAGE AND RECOMMENDATIONS

It seems but a few short months and not a whole year since we met at the Seventy-seventh Meeting of the Missouri State Medical Association. It has been a year of pleasant memories to me and much profit and my earnest hope is that I, as President, have in no wise hindered the progress of organized medicine. I have learned much of doctors as individuals and as societies of earnest men and I am frank to state that today I hold all members of organized medicine in higher regard than before I had this perspective of them.

This last year, in many respects, has meant more to the practice of medicine and to the science of medicine than any like period in the history of our profession. Some may say that nothing of importance has been attempted or accomplished by organized medicine; that we have been asleep and have not taken advantage of opportunities but I believe if all the facts were known it would be recognized that much progress has been made along a sane and sound course. The art and science of medicine in this country is better entrenched and held in higher esteem today than ever before. And any member of the medical profession who does not avail himself of the advantages of membership in organized medicine is shortsighted indeed.

I think there can be no doubt in the mind of any of us that the most vital and important question confronting us today is that of compulsory or other sickness insurance.

A communication from the Committee on Legislative Activities of the American Medical Association states, "The interest and activity of the individual physician must be aroused to the degree that he will inform himself concerning sickness insurance and present such information to the lay public which he contacts. In this way he will aid greatly in crystallizing public opinion against harmful legislation."

It seems to me this has been accomplished to a great degree since the meeting of the House of Delegates of the American Medical Association at Chicago, February 17, this year. Many county societies have taken action opposing sickness insurance and have made their action known to those having these matters in hand. The quick action taken at a meeting of the Executive Committee of the Missouri State Medical Association held in St. Louis immediately following adjournment of the House of Delegates in having the report of the Reference

Committee brought before the county societies, amounted to a campaign of education and increased interest in this matter has been noticeable.

The report also encourages local medical societies to adopt and present plans for the provision of adequate medical service for all the people, adapted to their respective communities. I therefore recommend that a committee to serve as a County Service Bureau be appointed, the duties of this committee to be to furnish to the county societies advice and assistance in the formation of plans to render medical service as requested by the American Medical Association.

In the last number of THE JOURNAL we find the statement that there are nine states which have basic science boards and a basic science law has recently been enacted in Iowa and such laws are pending in a number of other states. The article also says that a basic science board is particularly desired in those states which have a multiplicity of examining boards, and who can deny that Missouri comes within that category? I recommend that you give this matter special and serious consideration and endorse such action in Missouri.

The present arrangement of Councilor Districts was made at a time when it was necessary and expedient to consider railroad connections. But now state highway systems have changed the face of the map and it seems to me that in some instances a rearrangement of Councilor Districts might result in a closer and more intimate association of members of the county societies in their districts.

The American Committee on Maternal Welfare has mapped out a program to promote and secure the formation of committees in all the states for the furtherance of maternal welfare. They are asking state associations for a state committee which in time would sponsor the formation of similar local committees in each county society. They believe in this way a maternal welfare program would become an official part of the activities of the various state and component county societies. I recommend the appointment of such committee.

After careful consideration of the merits of the proposed Constitutional amendments I am convinced of the wisdom of adopting that section of the amendment which gives the right of vote in the House of Delegates to the delegates alone but extends to the Councilors and other officers the privilege of discussion of all questions. This, I believe, is in conformity with the custom of the American Medical Association.

I have observed the activities of the various standing committees as well as the office of our Secretary and wish to commend them for their energy and efficiency. Especially do I wish to commend our Secretary and the office personnel. It has been my observation that through the help and with the assistance of our Assistant Secretary we have been able to make outside contacts that are and will be of great benefit to our organization.

On motion of Dr. C. H. Neilson, St. Louis, duly seconded, this report was referred to the Council.

The President appointed the following reference committees:

Reference Committee on Miscellaneous Affairs

F. B. Long, Sedalia, Chairman.
Paul F. Cole, Springfield.
B. G. Gossow, St. Charles.

Reference Committee on Resolutions

Ralph R. Wilson, Kansas City, Chairman.
L. J. Schofield, Warrensburg.
B. W. Hays, Jackson.

Reference Committee on Amendments to Constitution and By-Laws

W. H. Breuer, St. James, Chairman.
W. A. Braecklein, Higginsville.
T. W. Cotton, Van Buren.

Dr. Spence Redman, Platte City, Chairman of the General Committee on Arrangements, reported as follows:

REPORT OF THE GENERAL COMMITTEE ON ARRANGEMENTS

The General Committee on Arrangements has no report to make other than that the Local Committee on Arrangements, together with the other various committees which have been appointed, have taken care of everything looking to your entertainment and comfort that it seems to me is possible to be done. It left nothing for the General Committee to do except look on.

On motion of Dr. W. T. Elam, St. Joseph, duly seconded, this report was adopted.

Dr. Joseph Dauksys, Excelsior Springs, Chairman of the Local Committee on Arrangements, reported as follows:

REPORT OF THE LOCAL COMMITTEE ON ARRANGEMENTS

The only report we have to make is that the Clay County Medical Society, although small in number, has tried hard to put on a good meeting and we hope everything is satisfactory. All the sessions will be held at the Elms Hotel except the Thursday morning clinic which will be at the Veterans' Hospital at 10:30. We will have transportation for the doctors from the hotel to the hospital.

In the way of entertainment, we are having one party. On Wednesday night we will have a stag smoker. We will serve a cold lunch and have some of the foaming brew. For this entertainment we are asking you to buy a ticket which will be on sale at the registration desk, and we would appreciate your getting your tickets early so we may plan for the luncheon.

Two things we ask of you particularly. One is to pay attention to the Scientific Exhibits. The men who have put on these exhibits have gone to a great deal of trouble and we hope each of you will spend some time in looking at them. It is rather discouraging when a man spends weeks and sometimes months preparing an exhibit to have it casually passed over.

The same thing is true of the Commercial Exhibits. We have ten exhibits and each one of the companies has come here, not with the idea of selling you something here, but of selling you prompt and good service whether you buy anything or not. Please evince a little interest in their exhibits. After all, they are paying for this convention in a measure and I know if these men go back with a good report their companies will be glad to come back next year, and perhaps instead of ten exhibits we will have fifteen or twenty in 1936.

The Veterans' Hospital is up the hill and any time you care to go in, the doors are open. If a group would like to inspect it and will let me know I will see that a guide goes with you.

If anyone wishes to play golf, just go to the desk and there will be arrangements made for you. We did not plan a golf tournament; primarily we did not want to do anything to interfere with the business sessions or general program. I hope we have a good meeting.

On motion of Dr. C. H. Dixon, duly seconded, this report was adopted.

The Secretary, Dr. E. J. Goodwin, St. Louis, read his report as follows:

REPORT OF THE SECRETARY

Continuing the policy of extending leniency to delinquent members we still carry quite a few delinquent members on the rolls as in good standing at either their own request or that of their Society. Delinquent dues of those members unable to pay have been charged off upon recommendation of the Society. The Association has proved to these unfortunate members that in these troublous times their misfortune will not bar them from enjoying the full privileges of membership in an Association which they have faithfully supported. This opportunity for the Association to maintain its membership would be without effect if there should be a reduction in dues, as these members would have to be dropped and the activities of the organization curtailed in many respects. With legislation inimical to professional interests being prepared on every hand there never has been a greater need for a unified profession.

We have established a card index file in the office which includes all nostrums, quack physicians, quack institutions, etc. The file includes: Alcohol, tobacco and drug habit cures, cancer cures and treatments, consumption cures, cough remedies, cosmetic and allied preparations, deafness cures, female weakness cures, nostrums for kidney diseases and diabetes, mechanical nostrums and quackery of the drugless type, medical institutes, medical mail-order concerns, men's specialists, mineral waters, miscellaneous nostrums, obesity cures, etc. The foregoing are reports of the American Medical Association's Bureau of Investigation. The file includes all articles not approved since these reports were published. Thus anyone making an inquiry about a certain doctor, institution or preparation can be given this information quickly.

Other activities of the office at headquarters are reflected in the reports of the Council and standing committees, all the clerical work for these bodies having been done in our office.

The advertising department of THE JOURNAL shows an increase of \$712.85 over the income from that source for 1933 but the advertising did not pay all the cost of publishing

THE JOURNAL, the deficit being \$1,017.40. The Publication Committee will present details in their report on JOURNAL affairs.

The books of the Association were audited by Mr. Robert A. Lennertson, certified public accountant, formerly with Kessler-Cartall Company. This report was published in the April, 1935, issue of THE JOURNAL in accordance with a By-Law adopted at the 1934 Session.

Concerning medical aid to the indigent under the Federal Emergency Relief Administration I append to my report a table* showing medical aid reported by the Missouri Relief and Reconstruction Commission during the year, 1934, classified by counties. The figures show that during 1934 the total direct relief in Missouri amounted to \$12,405,904.03. Out of this sum the amount of money for medical aid was only \$252,844.05, or a percentage of 2.04 per cent. The Public Policy Committee has persistently sought to procure authorization for a uniform state wide plan for medical care of those on relief but without results. The Federal Government has appointed a physician at Washington to be in charge of all medical relief under the FERA. Similarly a number of state relief administrators have appointed state medical advisers. In my judgment efficiency and economy in medical relief under Rules and Regulations No. 7, FERA, can be best effected through the appointment of a competent medical adviser to cooperate with the state emergency relief administrator. Only in that way can a proper understanding be had, adjustments be made and harmonious and effective cooperation be assured among physicians, dentists, nurses, pharmacists, state and local hospitals, dispensaries, patients on relief rolls and proper standards of medical relief maintained. Greene County Medical Society passed a resolution requesting that a medical director be appointed in Missouri. The Committee on Public Policy will probably have something to say on this subject.

The amendments to the Constitution introduced at the 1934 Session will come up for action at this Session. These amendments should, of course, be referred to the Reference Committee on Amendments to the Constitution and By-Laws for report and recommendations.

The Nominating Committee must submit nominations for the following offices:

Three vice presidents to fill the vacancies of Dr. D. S. Conley, Columbia; Dr. F. G. Mays, Washington, and Dr. U. J. Busiek, Springfield, whose terms expire this year.

The terms of the Councilors in the even numbered districts expire this year so the Nominating Committee must nominate members to fill the vacancies in the 2nd, 4th, 6th, 8th, 10th, 12th, 14th, 16th, 18th, 20th, 22nd, 24th, 26th, 28th and 30th districts.

The Association lost through the death of Dr. A. J. Welch, Kansas City, the services of the Councilor of the 13th District but that vacancy has been filled by the President who appointed Dr. E. P. Heller, Kansas City, to fill the unexpired term.

The Association also lost through the death of Dr. D. A. Barnhart, Huntsville, his services as Councilor of the 10th District. This vacancy has been filled by the President by the appointment of Dr. C. H. Dixon, Moberly, whose term expires this year.

Two delegates to the American Medical Association must be nominated to fill the vacancies created by the expiration of the terms of Dr. E. P. North and Dr. E. J. Goodwin, St. Louis.

A resolution was adopted by the House of Delegates at the St. Joseph Session in 1934 instructing the Delegates to the American Medical Association to request the American Medical Association not to approve any institution for any purposes unless and until such institution shall be officially on the approved list of the component medical society or societies in the jurisdiction of which such institution is located or operates. This resolution was introduced into the House of Delegates by Dr. E. P. North but was disapproved by the House of Delegates.

A dinner will be given by the Association to the County Secretaries on Tuesday evening, May 7, at 6 o'clock at the Elms Hotel. This is an occasion that brings the secretaries together for an evening's entertainment and exchange of views on county society work. We will have as guests at this meeting Dr. R. G. Leland and Dr. W. W. Bauer of the American Medical Association. In addition to the secretaries all Councilors and officers of the Association are requested to attend the dinner.

A scientific exhibit has been installed which holds much of interest for the members and I hope all will visit it. These exhibits were made possible through the work of the Local Committee on Arrangements under the direction of Dr. Dauksys, chairman of the Local Committee.

I think that it is only proper for me to mention that the increase of advertising income over that of 1933 is due almost entirely to the splendid work of our Assistant Secretary and Business Manager, Mr. Bartelsmeyer. I might also mention

* This portion of the Report of the Secretary was published in the June issue of THE JOURNAL, page 256.

that through his activities the number of commercial exhibits is slightly in excess of those in attendance at the last two sessions and he has applications from more exhibitors than he could accommodate because our space is quite limited.

I would like to have the members visit these commercial exhibits and get acquainted with the representatives of the firms whose products are on display. Every one of these firms is approved by the Council on Pharmacy and Chemistry or other departments of the American Medical Association and they cooperate with us in numerous ways other than advertising. Since these firms have adopted business methods that are in harmony with the ethics of our profession I feel that it would be a courtesy on the part of our members to visit the exhibits, a courtesy which will not be unappreciated.

In 1933 the number of members showed a loss of fifty-eight. In 1934, as is shown by the figures on the status of membership, there was a gain of seventeen members.

Status of Membership

| | |
|---|-------|
| Number of members, January 1, 1934..... | 3109 |
| New | 153 |
| Reinstated | 59 |
| | <hr/> |
| | 212 |
| Total | 3321 |
| Dropped | 87 |
| Deceased | 72 |
| Transferred | 36 |
| | <hr/> |
| | 195 |
| Total January 1, 1935..... | 3126 |
| Of this total 167 are Honor Members. | |

E. J. GOODWIN, Secretary.

On motion of Dr. W. T. Elam, St. Joseph, duly seconded, this report was referred to the Council with the exception of the part which referred to the amendments to the Constitution which was referred to the Reference Committee on Constitution and By-Laws.

The Treasurer, Dr. R. A. Woolsey, St. Louis, read his report as follows:

REPORT OF THE TREASURER

The financial status of the Association as of December 31, 1934, was published in detail in the April, 1935, issue of *THE JOURNAL*. I have brought down the figures of receipts and expenditures since the first of January, 1935, to and including April 30, 1935. These figures show the sums in the various funds as follows:

General Fund

Receipts

| | |
|---|-------------|
| Balance, Dec. 31, 1934..... | \$ 3,827.89 |
| Membership dues collected..... | 14,651.25 |
| JOURNAL advertising | 1,690.70 |
| Exhibit Space | 260.00 |
| Medical Protective Company (rent).... | 180.00 |
| Subscriptions | 38.65 |
| Refund from Ovid Bell Press for paper.. | 87.21 |
| Total | <hr/> |
| | \$20,735.70 |

Disbursements

| | |
|--------------------------------------|-------------|
| Vouchers paid | \$ 9,285.09 |
| Transferred to Legislative Fund..... | 1,884.00 |
| Total | <hr/> |
| | 11,169.09 |
| Balance, April 30, 1935..... | <hr/> |
| | \$ 9,566.61 |

Legislative Fund

Receipts

| | |
|------------------------------------|-------------|
| Balance, Dec. 31, 1934..... | \$ 2,732.48 |
| Transferred from General Fund..... | 1,884.00 |
| Total | <hr/> |
| | \$ 4,616.48 |

Disbursements

| | |
|------------------------------|-------------|
| Legislative Expense | 54.90 |
| Balance, April 30, 1935..... | <hr/> |
| | \$ 4,561.58 |

Defense Fund

Receipts

| | |
|-----------------------------|-------------|
| Balance, Dec. 31, 1934..... | \$ 1,597.24 |
|-----------------------------|-------------|

Disbursements

| | |
|------------------------------|-------------|
| Vouchers paid | 500.00 |
| Balance, April 30, 1935..... | <hr/> |
| | \$ 1,097.24 |

Sinking Fund

Balance, Dec. 31, 1934, and April 30, 1935 \$ 2,069.00
These figures show that there was a balance of \$10,226.61 on hand January 1, 1935, and receipts from membership dues, advertising and other sources of income amounted to \$16,907.81. During the period January 1 to April 30, 1935, there was disbursed by vouchers properly endorsed and signed by the officers, \$9,839.99. This leaves the financial status at April 30, 1935, as follows:

| | |
|------------------------|-------------|
| General Fund | \$ 9,566.61 |
| Legislative Fund | 4,561.58 |
| Defense Fund | 1,097.24 |
| Sinking Fund | 2,069.00 |
| Total | <hr/> |
| | \$17,294.43 |

R. A. WOOLSEY, Treasurer.

On motion of Dr. W. T. Elam, St. Joseph, duly seconded, this report was referred to the Council.

Dr. E. J. Goodwin, St. Louis, Chairman of the Committee on Scientific Work, reported as follows:

REPORT OF THE COMMITTEE ON SCIENTIFIC WORK

The results of the activities of the Committee on Scientific Work will be placed before you in the next three days. The Committee feels that an excellent program has been arranged. It deals with a wide variety of medical and surgical topics and the men presenting the various subjects are well qualified to do so.

Of vital interest to all physicians today is the subject of medical economics and we have been most fortunate in having Dr. R. G. Leland, Director of the Bureau of Medical Economics of the American Medical Association, present this subject at our Tuesday night session. Our other guests at the Session are Dr. J. S. Coulter, Chicago; Dr. Oswald S. Lowsley, New York; Dr. W. W. Bauer, Chicago, and Dr. Cecil S. O'Brien, Iowa City. We planned to have Dr. Austin Hayden of the American Medical Association with us but because of a conflict in dates he is unable to come.

As in the last two years the members interested in eye, ear, nose and throat work will hold a session the latter part of Thursday morning and on Thursday afternoon.

The Committee hopes that the members will enjoy the Session and profit by this program.

E. J. GOODWIN, Chairman,
ROBERT F. HYLAND,
JAMES E. STOWERS.

On motion of Dr. C. H. Dixon, Moberly, duly seconded, this report was adopted.

Dr. J. F. Harrison, Mexico, Chairman of the Committee on Public Policy, read his report as follows:

REPORT OF THE COMMITTEE ON PUBLIC POLICY

At a meeting of the Executive Committee in St. Louis, January 23, 1935, a legislative plan was discussed with the following conclusions:

That it was not advisable for the State Association to again propose a medical lien law, the reason being the strong opposition that was encountered two years ago; also that in the ten states having lien laws, in six of them it applies only to hospitals. In no state is there a law giving the right to lien to physicians only.

Prior to this time (January 23, 1935) the State Hospital Association had been advised that if they wished to sponsor a lien law that the Legislative Committee and State Association would assist, but not provide funds.

Dr. W. L. Allee, of the Public Policy Committee, made the following report of a conference at Jefferson City with a Committee from the State Board of Health on January 22, 1935:

"That the Board of Health contemplated increasing registration fees for applicants for examination from \$15.00 to \$25.00; provide compensation for board members of \$10.00 per day, also additional fee for grading appears; that applicants for medical examination must be 21 years of age, citizens of the United States, and able to read and write the English language, and must have completed college courses, etc.

"It would also be proposed to raise the license fee for midwives to \$50.00.

"There had been some discussion concerning the introduction of a bill providing for annual registration of physicians in Missouri and a fee thereof. Members of the conference assured Dr. Allee that such a measure would not be introduced at this session. There was some discussion concerning the introduction of a basic science bill."

The Executive Committee accepted the report of Dr. Allee and approved the legislation which was agreed upon at the conference as stated.

The Secretary was instructed to write Dr. W. T. Elam, member of the State Board of Health Committee, that if the State Board of Health introduced a basic science bill the Association would cooperate with the State Board of Health in an effort to secure its passage.

At this time it was thought that a social security bill providing sickness insurance would be introduced in the Missouri Legislature. No such bill has been introduced.

As indicated above there was no new legislation proposed by the Public Policy Committee.

It would make this report too long and tedious to discuss all the bills that in some way interested the medical profession. Only the more important will be discussed.

The Legislature convened on January 2, and has been in continuous session since and will probably not complete its work until the middle of May.

Senate Bill No. 28 was one of the first acts introduced. It related to outlawing marijuana or indian hemp or any drug prepared by same. This bill passed both Houses. The emergency clause was signed by the Governor and is now enforced.

House Bill No. 55 sought to repeal Section 9025, Laws of Missouri, 1933, merely seeking to change the word "may" to the word "shall" in this Section, making it mandatory instead of optional to appoint deputy state health commissioners in various counties in the state. This bill failed of passage.

Senate Bill No. 45 changing the law making it mandatory that the Eleemosynary Board shall appoint additional assistant physicians, one for each 300 patients or major fraction thereof, for the various hospitals, except the Mount Vernon Sanatorium for tuberculosis where one assistant physician for each seventy-five patients or major fraction thereof shall be appointed. This bill passed the General Assembly and has been signed by the Governor. This will give the Eleemosynary Board an opportunity to increase the medical force in state hospitals by approximately fourteen assistants.

House Bill No. 174 was referred to the Workmen's Compensation Committee where your Committee appeared in opposition. The act sought to amend Section 3305 by adding a new subdivision to be known as "Subdivision F," by which the term "physician or surgeon" shall be construed to include licensed healing practitioners in the state (in the treatment and examination of employees protected in this Workmen's Compensation Act). The purpose of the bill was to permit chiropractors to examine and treat compensation cases. This bill was reported out favorably by the committee but was defeated in the House.

House Bill No. 300 also proposed to amend Workmen's Compensation by adding a new section making it a misdemeanor to deny inspection of hospital and medical records or to refuse to furnish certain information, etc., providing a penalty of \$500 fine and imprisonment in the county jail.

The committee to which the bill was referred was convinced that under present conditions records are available and, in accordance with this opinion, the bill was killed in the committee. Dr. E. C. Funsch, St. Louis, appeared before the committee against the bill.

Four house bills were introduced by Mr. Dale of Ray County at the request of the State Board of Health known as H. B. Nos. 305, 306, 307, 388.

House Bill No. 305 raised the licensing of chiropody practitioners. This bill did not pass.

House Bill No. 388 related to annual registration of physicians and surgeons, midwives, chiropodists, and required a fee of \$2. Your Committee did not favor H. B. No. 388. The same proposition was discussed two years ago and was regarded very unfavorably by members of this Association. The measure failed to pass the House.

House Bill No. 306 had for its purpose the enactment of a new section in lieu of Section 9020. This Act sought to give each member of the Board of Health compensation of \$10 per day for each day actually engaged in the service of the board, and in addition they should receive reasonable compensation for grading examination papers, and for legitimate and necessary expense incurred while employed on the business of the board. Also, in this section the secretary of the board, as now mentioned in the statutes, is designated as a Commissioner of the Board of Health. The old section provided only for actual expenses to be allowed. This bill was defeated twice in the House. Upon a motion to suspend the rules, which carried, it was passed on April 25. Your Committee offered no objection to H. B. No. 306.

House Bill No. 307 was passed in the House on April 25 under the same condition and with House Bill No. 306.

House Bill No. 307 proposes to repeal Sections 9113, 9114, 9119 and 9125 of article I, Chapter 53, Revised Statutes of the State of Missouri, 1929, in relation to "Medicine, Surgery and Midwifery" and to insert in lieu thereof, four new sections to be known as 9113, 9114, 9119 and 9123.

The purpose of the proposed revision seems to be to prevent those who are not citizens of the United States and who

are not able to read and write the English language correctly from taking the state board examinations.

House Bill No. 307 also provides change in fee for examination from \$15 to \$25.

Section 9114 of a perfected Bill No. 307 states the board shall have exclusive right to determine the reputability of medical schools or at its discretion may accept a medical school recognized and approved by the Association of American Medical Colleges.

Section 9113. The Bill omits the word "reputable" when referring to the medical college from which persons applying for a license have received a diploma. The bill merely states that persons appearing for an examination for a license to practice have received a diploma from some medical college recognized by the board.

The bill further omits the provision of the present law compelling the board to give the same examination to all applicants and requiring them to show the same degree of proficiency. This omission would permit the board to make exceptions, if they so chose to do, in issuing licenses which would be detrimental to the public welfare and to the admission into the profession of persons not properly qualified to practice medicine. The bill omits the clause among the qualifications necessary for application for a license in the present law which reads "including two years' experience in operative and hospital practice at the time of graduation."

A very serious defect in the bill is the omission of the clause in the present statute prohibiting the board from issuing temporary licenses.

The Public Policy Committee believes that it is not necessary or advisable to give the state board exclusive authority as provided in H. B. No. 307. There is no personal antagonism on the part of your Committee toward the present state board. We have no reason to believe that the authority granted in this proposed law would be abused by the present board. The personnel of the board is continually changing and we have no knowledge as to who future members may be or what they might do.

For the above reasons your Committee offered at the Senate Committee hearing on May 1, 1935, a "Committee Substitute" for H. B. No. 307 which provides for changing the examination fee from \$15 to \$25 and also provides that any applicant to take the examination before the state board must be a citizen of the United States, resided in the United States for one year prior to making application; also that they shall be able to read and write the English language.

With the above exceptions the "committee substitute" follows the wording of the present law.

The above statements explain the status of H. B. No. 306 and H. B. No. 307 when this report was written.

At this time it is not possible to determine the effect of the sales tax on members of our profession. If the rate is fixed at $\frac{1}{2}$ of 1 per cent as is the present law, it seems the intention of the Legislature is to broaden the base so as to include all professional service which, of course, would include doctors of medicine.

An effort has been made by your Committee to establish a closer working relation between the Missouri State Medical Association and the members of the State Legislature. This endeavor has been conducted through correspondence with the Auxiliary Members of the Public Policy Committee. Each county should have an auxiliary member of the Public Policy Committee. This has proved very satisfactory and we believe should be continued. The members of the local societies can reach their representatives in the House and Senate much more easily and effectively than the members of the Committee.

If we, as a profession, are to maintain our legislative rights and strength, it will be necessary for members of the Missouri State Medical Association to give more time and thought to legislative matters.

The average member of the Legislature is cooperative if he is given information and has an opportunity to discuss matters with his medical friends at home.

J. F. HARRISON, Chairman,
W. L. ALLEE,
W. H. BREUER.

On motion of Dr. W. T. Elam, St. Joseph, duly seconded, the Report of the Committee on Public Policy was referred to the Council.

Dr. Ellis Fischel, St. Louis, Chairman of the Committee on Cancer, reported as follows:

REPORT OF THE COMMITTEE ON CANCER

This report will summarize as briefly as possible the activities of your Committee on Cancer for the year 1934-35.

The general educational program, which is part of a five year plan to place before the lay population of the State of Missouri information about cancer and before medical groups up-to-date methods for the treatment of cancer in all locations of the body, has been promulgated with increasing efficiency. The general subject for presentation to county medi-

cal societies has been "Cancer of the Uterus." Your Committee has carried out the same general plan as last year, namely: the state has been divided into three sections, each section comprising a number of Councilor Districts. Each section also has its chairman and when a program is arranged in any Councilor District the meeting is placed in charge of the chairman in that section of the state. In this way we were able to supply "teams" which went out from St. Louis, Kansas City and St. Joseph. All in all we have completed twenty-three cancer educational meetings in twenty-one Councilor Districts and in addition have dated six meetings for six Councilor Districts in May and June of this year. Thirty-seven physicians have taken part as members of the "teams." Maps showing the location of these meetings are on display in the Cancer Exhibit.

The Committee, realizing that the success of the local meetings largely depended upon the Councilor of the District or some officer of the county medical society, feels that where these meetings were a success the greatest credit should be given to the local committees which arranged the meetings.

In order to obtain the reactions of the local men, questionnaires were sent out as follows:

Do you believe that the program of the Cancer Committee of the Missouri State Medical Association has been of value in your District?

Is the value, if any, commensurate with the effort expended by you?

Have the cancer "teams" done their part to make the programs successful?

Has the cooperation of the Cancer Committee in making your programs a success been satisfactory?

Have you any suggestions for improved cooperation?

The five year program recommended by the Cancer Committee and approved by the House of Delegates in 1933 has three more years to run. The Cancer Committee realizes that much work devolves upon the Councilors or local officers of county medical societies to make these meetings successful. In your opinion is the work worthwhile and are you willing to continue your cooperation?

The answers received have been uniformly favorable to a continuation of the program.

The Missouri State Committee of the American Society for the Control of Cancer has cooperated to the fullest extent with this cancer educational program. Not only has all the literature for free distribution to lay groups and physicians been furnished, but also one half of the traveling expenses of the "teams" has been met by this Committee; and the services of a full time secretary have been made available since March 1, 1935.

In March of this year the Editor of THE JOURNAL of the Missouri State Medical Association received a letter from the Journal of the American Medical Association which requested information in regard to the fulfillment by the State of Missouri of the recommendations embodied in the cancer survey of the state made by Dr. F. L. Rector, field representative of the American Society for the Control of Cancer. These recommendations were approved by the House of Delegates in 1934 and it was pertinent to analyze the cancer situation in reference to these recommendations. In all twenty-six items are included. Of these items sixteen have been accomplished or are in process of accomplishment; six are considered by your Cancer Committee as impractical for the State of Missouri at the present time; this leaves four which are still to be attained. Since the entire Survey with recommendations has been published in THE JOURNAL of the Missouri State Medical Association, Vols. 31 and 32, Nos. 10, 11, 12 and 1, 2, 3, it is unnecessary to itemize these in full.

It is hoped that tumor clinics will be established by the local profession in St. Joseph, Springfield and Joplin. The matter has been discussed in Springfield by a group meeting in conjunction with the field representative of the American Society for the Control of Cancer and it is hoped that in our next annual report we shall be able to include the formation and operation of the tumor clinics in these three important centers.

The Tumor Clinic at State Hospital No. 1, Fulton, has continued to operate under the supervision of Dr. D. A. Robnett. Dr. Robnett's report of the first year's operation of this clinic is embodied in THE JOURNAL of the Missouri State Medical Association, Vol. 32, No. 2.

It is with regret that the Committee on Cancer has learned of the resignation of Dr. R. C. Fagley as Superintendent of State Hospital No. 1 because his interest and cooperation in the work of your Committee has been most helpful and stimulating. Dr. Ralf Hanks, his successor as superintendent, as well as Mr. W. Ed. Jameson, president of the Board of Managers of the State Eleemosynary Institutions, have shown sympathy and interest in the work of the tumor clinic and your Committee has confidence that the work of the clinic will continue with their fullest cooperation.

The Committee on Cancer was requested by the Committee on Scientific Exhibits to present an exhibit at this present session. The Committee complied with this request and your attention is respectfully solicited in behalf of the exhibit which is participated in by the Cancer Committee of the Missouri State Medical Association, the Missouri State Committee

of the American Society for the Control of Cancer, the Missouri State Board of Health, the Tumor Clinic, State Hospital No. 1, Fulton, the Tumor Clinic, Menorah Hospital, Kansas City, Missouri, and the Barnard Free Skin and Cancer Hospital, St. Louis.

This report cannot be considered complete without a word of appreciation for the interest and cooperation of the State Health Department in charge of Dr. E. T. McGaugh, of the Council of the State Medical Association, and of the Secretary and office personnel of the State Medical Association which has given invaluable assistance. Without the cooperation of these organizations the work of your Committee could not have been carried on with its present enthusiasm and success.

In the interval between June 29, 1934, and April 24, 1935, your Committee on Cancer has held five committee meetings.

Recommendations for the ensuing year may be briefly summarized as follows: That the work of the Cancer Committee be continued along practically the same lines as for the previous year and that the third year of the five year plan be devoted to presenting before every county medical society in the state the present day knowledge in reference to prevention, diagnosis and treatment of cancer of the skin and mouth.

ELLIS FISCHER, Chairman,
DUDLEY A. ROBBETT,
FLOYD H. SPENCER.

By consent, the Report of the Committee on Cancer was referred to the Committee on Miscellaneous Affairs.

Dr. J. C. B. Davis, Willow Springs, read the Report of the Committee on Publication, as follows:

REPORT OF THE COMMITTEE ON PUBLICATION

The thirty-first volume of THE JOURNAL was completed with the December issue. During 1934 there have been published in THE JOURNAL eighty-eight original articles, seventeen special articles, forty-five editorials, one hundred sixty-eight news items, forty-six obituaries, ninety-two society proceedings including the proceedings of the State Association, eleven Woman's Auxiliary reports, ten miscellaneous articles, fifty-two book reviews and fifty-six commercial announcements. There were 492 pages of reading material and 336 advertising pages. There were eighty-four books received during the year for review in THE JOURNAL and distribution to medical libraries in the state.

Advertising in THE JOURNAL from Jan. 1, 1934, to Dec. 31, 1934, earned \$5462.41 with \$621.25 to be collected, totalling \$6083.66. Subscriptions of nonmembers amounted to \$87.25 making \$6170.91 actually earned by THE JOURNAL. The cost of printing THE JOURNAL was \$3963.93, the cost of paper \$1125.54 and cost of illustrations \$292.43 making the total cost of production \$5381.90.

J. C. B. DAVIS, Chairman,
G. WILSE ROBINSON,
WALTER BAUMGARTEN.

On motion of Dr. C. H. Neilson, St. Louis, duly seconded, the Report of the Committee on Publication was referred to the Council.

Dr. C. E. Hyndman, St. Louis, Chairman of the Committee on Defense, reported as follows:

REPORT OF THE COMMITTEE ON DEFENSE

STATUS OF CASES

| | |
|---|-----------|
| Cases pending May 1, 1934..... | 13 |
| Threats pending May 1, 1934..... | 5 |
| New cases (May 1, 1934, to May 1, 1935)..... | 9 |
| New threats (May 1, 1934, to May 1, 1935)..... | 1 |
| Cases settled (May 1, 1934, to May 1, 1935)..... | 9 |
| Threats which have not developed..... | 1 |
| Cases pending May 1, 1935..... | 13 |
| Threats pending May 1, 1935..... | 5 |
| Financial assistance rendered (May 1, 1934, to May 1, 1935)..... | \$1000.00 |

Of the nine cases settled during the year three were dismissed, two were verdicts for the defendant, one case was compromised, two were settled out of court and one was settled by compromise in the court.

The prompt and willing cooperation of the Councilors of each district demands the commendation and thanks of this Committee. The necessity for physicians to stand together for mutual protection is greater now than ever before. The physician is a constant target for the filing of the most unwarranted suits on the least provocation. Even though most of these suits are groundless and the physician's services have been the very best possible, each one has to be defended.

Behind every suit, whether intentional or unintentional, is the influence of some doctor. The remedy for this malpractice situation must come from within our own ranks and the sooner we each realize this the sooner we will cease to be the prey of designing patients and shyster lawyers.

This list of cases reported is only a very small part of the number of suits filed throughout the state as many physicians who carry insurance do not report their cases to the Defense Committee or ask for aid.

CHARLES E. HYNDMAN, Chairman,
M. L. KLINEFELTER,
O. B. ZEINERT.

On motion of Dr. J. B. Wright, Trenton, duly seconded, the Report of the Committee on Defense was referred to the Council.

Dr. Ross A. Woolsey, St. Louis, Chairman of the Committee on Medical Education and Hospitals, reported as follows: The only report we have to make is the investigation of one hospital which was found satisfactory.

By consent this report was accepted.

Dr. C. H. Neilson, St. Louis, Chairman of the Committee on Postgraduate Course, reported as follows:

REPORT OF COMMITTEE ON POST-GRADUATE COURSE

Last fall I was at the meeting of the Association of American Medical Colleges at Nashville, Tennessee. A paper was read by the dean of a medical school in the State of New York outlining the amount of work that is done by the medical schools of the state and the State Association of New York for postgraduate instruction in the State of New York; a very elaborate program. In that report he spoke of the various states which are attempting to do postgraduate work and our own State of Missouri was included in that list.

The question of postgraduate work is important, but the amount of work that has been done this year is about 20 per cent less than last year. However, when any county, or tri-county or councilor district has asked for speakers from the city, they were given those speakers. Therefore, the fault is at least not with the speakers nor with the committee, but with you men personally.

I am a great believer in this kind of work, and I think the State Association, the House of Delegates and the Council should realize what this means—the question of postgraduate instruction. At the last meeting of the Executive Committee in St. Louis, Dr. M. Pinson Neal, Columbia, and Dr. James R. McVay, Kansas City, the other members of this Committee, appeared before the Executive Committee to discuss the subject of putting on a program for the study of appendicitis. They made a statement regarding the death rate from appendicitis showing that in many of the large cities, even including our own City of Kansas City, the death rate is going up. Where is the fault—with the physician, with the patient or with the home? That cannot be discussed at this time. After the enthusiastic report of Dr. Neal and Dr. McVay it was the unanimous consent of the Executive Committee that such a program should be put on next year if our Committee thought advisable. I agreed to this and I think it would be advisable and useful to all of us.

That brings up another point. We have a Committee called the McAlester Memorial Foundation. Most of you remember old Dr. McAlester in whose memory and honor the McAlester Foundation was established some six or eight years ago. Owing to the depression and other things they have had no money with which to carry out the wishes of Dr. McAlester. He wished to carry health problems before the lay people of Missouri. Now I have a feeling that the Missouri State Medical Association should aid the McAlester Foundation, and I believe a fusion of the Committee on Postgraduate Work and the McAlester Memorial Foundation should be brought about in an attempt to carry out an educational campaign in the homes and among lay people in regard to appendicitis. It will take some money to do this, and I should like to recommend that this campaign for the education of lay people and the doctors—we all need it—I do not know how to diagnose appendicitis—be put on, and this be the joint action of the McAlester Memorial Foundation and the Committee on Postgraduate Course, and I will draft Dr. M. Pinson Neal to carry this out.

C. H. NEILSON, Chairman,
J. R. McVAY,
M. P. NEAL.

On motion of Dr. C. H. Dixon, duly seconded, this report was adopted.

Dr. G. Wilse Robinson, Sr., Kansas City, Chairman of the Committee on Mental Health, reported as follows:

REPORT OF COMMITTEE ON MENTAL HEALTH

The Committee on Mental Health is the infant committee of our State Association. In 1930, at Detroit, the House of Delegates of the American Medical Association adopted the following resolution:

Whereas, The problem of mental disorders and defectives and the mental health of the country constitute one of the most serious situations with which scientific medicine is at this time concerned; and

Whereas, The hospitalization and care of the increasing number of mental disorders and defectives constitute one of the most difficult economic situations affecting the medical profession; and

Whereas, there is in the organization of the American Medical Association no regularly constituted body especially concerned with the problem; therefore be it

RESOLVED, That the Section on Nervous and Mental Diseases of the American Medical Association, with and by the power of the House of Delegates and the Board of Trustees of the American Medical Association, be authorized to appoint a special committee of five Fellows of the Association especially interested in these problems, with a view to making a report to the Board of Trustees on the manner in which the Association can be of service in the solution of these problems.

This Committee in our state organization was appointed to cooperate with the Committee of the American Medical Association on Mental Health. In order properly to cooperate we had to have their report. At the time of the appointment of this Committee a few months ago no printed reports were available and only about two weeks ago did we succeed in getting the printed report of this committee. The President, with the advice of Council, appointed five members on that committee: F. M. Grogan, St. Louis; E. D. Baskett, Columbia; G. A. Johns, St. Louis; E. F. Hctor, Farmington, and myself as chairman. We have had no full meeting. Last night Dr. Hctor, Dr. Johns and myself came to Excelsior Springs and had a meeting of three members of the Committee. We cannot report any particular work we have done because we have done nothing as yet.

There are three phases of this problem to be considered: The promotion of good mental health, the prevention of ill mental health and better treatment of those mentally ill. How are we going to attack that problem? I believe it should be attacked in this manner: The general practitioner of medicine is the man who first contacts those who are potentially psychotic, and this includes syphilitics and drug addicts of all sorts. The general man is the one who first contacts these individuals, and in order to better qualify him to handle these problems I believe there should be better and more intensive and practical teaching of psychiatry in our medical schools, not only in the third and fourth years but all through the entire medical course. I believe the members of this Committee, and other men engaged in neuropsychiatric work throughout the state, should meet with the county medical societies and discuss these problems with the members of those societies—not only how to prevent, but how to handle these cases after they develop. The question of continued care of these patients is important. After the symptoms of syphilis have disappeared the patient should be watched. It may be twenty years before he develops syphilis of the central nervous system. A large number of patients in our state hospitals are those who have been treated until no objective symptoms are found and then dismissed by the doctor saying, "You are all right; nothing the matter with you."

Our Committee would like to meet with the doctors in the county medical societies and discuss these problems; also with parent teacher organizations, with public school teachers because the foundation for mental ill health is often laid in the schoolroom. These problems should be discussed with students in teaching organizations and in institutions of higher learning throughout the state. That is our plan at present. We have not worked it out fully but that is what we plan to do. Of course our field of work may be enlarged later on and probably will as conditions develop. But if the members of the various county societies should desire these problems discussed, we would be glad to have you communicate with the members of this committee and we will try to supply your needs.

G. WILSE ROBINSON, Chairman.

On motion of Dr. W. T. Elam, St. Joseph, duly seconded, this report was adopted.

Dr. R. B. H. Gradwohl, St. Louis, Committee on Medical Economics, reported as follows:

REPORT OF COMMITTEE ON MEDICAL ECONOMICS

Your Committee believes that any form of regimentation of the medical profession of this state or lay control of medical practice would not only tend to impede medical progress but would ultimately tend to lower the quality of medical practice

now available to the people. Hence we view with disfavor any proposals to adopt the same or any political agitation leading to such ends.

Furthermore, your Committee believes that the present situation with regard to these matters is of such vital importance to the profession as to make it seem wise at this time for the House of Delegates of the Missouri State Medical Association to give expression through its official representatives to its opposition to any form of compulsory sickness insurance hitherto adopted in European countries, whether administered by national, state or municipal governments, corporations, individual industries or similar bodies.

However, since the primary consideration of the medical practitioner is the welfare of the people, the preservation of their health and their care in sickness as well as the advancement of medical science and the improvement of medical care, we favor the encouragement, in every way possible, of medical organizations to establish plans for the provision of adequate medical care for all the people on terms adjusted to the present economic conditions.

It must be borne in mind that local conditions differ in different communities. A plan that might be practical and advisable in one section might be clearly out of order in another part of the state; therefore, proper consideration to this state of affairs must be given in formulating action by this organization. Especially true is this as regards differences between rural and urban conditions. In the large cities the profession has problems that would not arise in the country, and vice versa. It cannot be too strongly urged that these differences are to be borne in mind in regulating the economic disturbances of today. The Committee recommends that the fullest expression of opinion be sought from all areas so that future action may be taken to correct conditions. To that end the Committee suggests that the various local units of this organization meet and submit their recommendations in the form of resolutions for the future guidance of the committee. In this way the Committee will feel the pulse of the entire cross section of the Association and will be in a position to recommend what is timely and appropriate for all.

Your Committee therefore recommends unqualified approval of the action taken by the House of Delegates of the American Medical Association at a special meeting February 16, last, called to consider the social and economic policies of the Association in connection with pending and proposed legislation relative to sickness insurance, and other matters submitted to it by the Board of Trustees.

R. B. H. GRADWOHL,
E. L. JOHNSTON.

On motion of Dr. C. H. Dixon, duly seconded, this report was adopted.

Dr. M. P. Overholser, Harrisonville, Chairman of the Special Committee on Constitution and By-Laws, reported as follows:

REPORT OF THE SPECIAL COMMITTEE ON AMENDMENTS TO THE CONSTITUTION AND BY-LAWS

The proposed changes in the Constitution introduced in the House of Delegates at our meeting in St. Joseph will come up for consideration at the proper time during the course of this Session and will be presented to you by the Reference Committee on Amendments to the Constitution and By-Laws.

M. P. OVERHOLSER, Chairman,
ROLAND S. KIEFFER,
MORRIS B. SIMPSON.

Dr. A. R. McComas, Surgeon, Chairman of the Special Committee on the McAlester Memorial Foundation, reported as follows:

REPORT OF COMMITTEE ON McALESTER MEMORIAL FOUNDATION

The McAlester Memorial Foundation, as has been well said by Dr. Neilson, has been trying to function without money and I was particularly glad to hear the statement he made, and the suggestion adopted by this House, that there be a tying up or interlocking between the McAlester Memorial Foundation and the Committee on Postgraduate Course. I think that probably meant that all of the talks to lay audiences would be under the McAlester Memorial Foundation, or come under that head, and we would certainly like to see that because Dr. McAlester was one of the first men in the state to visualize this education of the laity, especially the younger people or the school children. In reaching these younger people you get the proper ideas firmly imbedded and thereby get the particular character of cooperation that is necessary in the treatment of cases, and a better understanding of their own ailments. Therefore, Mr. President, I am particularly glad

that Dr. Neilson made the statements he did. It would also impress the talks to lay audiences as described by Dr. Robinson.

A. R. McCOMAS, Chairman.

On motion of Dr. W. T. Elam, St. Joseph, duly seconded, this report was adopted.

Dr. W. L. Allee, Eldon, Chairman of the Committee on Medical-Legal Affairs, reported as follows:

REPORT OF COMMITTEE ON MEDICAL- LEGAL AFFAIRS

This is a new committee that meets with a similar committee of the State Bar Association for the purpose of acting jointly on any matter that might affect the standing of both associations. There has been nothing referred to this committee that calls for joint action. I move the adoption of this report.

Motion seconded and carried.

Appointment of Committee on Nominations

The President announced the appointment of the Committee on Nominations as follows:

W. L. Allee, Eldon, Chairman.
W. T. Elam, St. Joseph.
R. E. Breuer, Newburg.
John H. Ogilvie, Kansas City.
C. H. Dixon, Moberly.
C. H. Lohr, St. Louis.
H. A. Lowe, Springfield.
F. W. Mann, Wellington.
J. C. O'Connell, Overland.
E. B. Robichaux, Excelsior Springs.

On motion the House of Delegates recessed until 3 o'clock.

Monday, May 6, 1935—Afternoon Session

The adjourned session of the House of Delegates convened at 3:30 p. m., Monday, May 6, with the President, Dr. C. T. Ryland, presiding.

THE PRESIDENT: We have with us this afternoon Mr. C. P. Loran, Secretary-Manager of the Southern Medical Association. I would like to give you an opportunity to hear from him at this time.

MR. C. P. LORAN, Secretary-Manager, Southern Medical Association, Birmingham, Alabama: I did not expect to have the pleasure of speaking to you, because, as I have said on other occasions (not at the Missouri meeting because this is my first visit to your Association), I am the working end of the Southern Medical Association, not the speaking end.

It is a great pleasure to be with you at this Annual Meeting and to bring you the greetings of the Southern Medical Association from the central office at Birmingham. We are looking forward with a great deal of anticipation to the meeting of the Southern in St. Louis in November. Every indication now is that it will be about the best meeting we have ever had, and those of you who have attended the meetings of the Southern Medical know that they are all good. We expect the largest attendance we have ever had because we are expecting Missouri, with the large, active and progressive membership you have in your State Association, to give us a large number of your own men, and with the others drawn from our large territory we think we will have in your City of St. Louis the greatest meeting we have ever had.

I am delighted to be with you. I expect to stay until this meeting is over and to have the pleasure of meeting those of you whom I do not now know. I have known some of your men for a good many years and I prize their friendship very much. We are particularly fortunate, we think, in the set-up we have in St. Louis. Everything is working out fine, and we

hope you will commence now to make your plans to be with us there in November.

Dr. A. R. McComas, Surgeon, Chairman of the Council, reported as follows:

REPORT OF THE COUNCIL

At the meeting of the Executive Committee, St. Louis, on August 3, 1934, the Secretary reported that in the reappointment of delegates to the A. M. A. at the 1934 session, our Association retained its five delegates.

The Council on Physical Therapy of the American Medical Association recommended a program of graduate education on physical therapy in Missouri. It was decided to place this matter in the hands of the Committee on Postgraduate Work, with instructions to formulate a plan of campaign in Missouri.

The Assistant Secretary reported that the NRA had forwarded a Blue Eagle emblem designating the Association as a member of the Periodical Publishers and Printing Institutions and also a pamphlet in explanation of the Graphic Arts Code as applied to periodical publishers. On motion the Secretary was instructed to file with the code authority a statement of our subscription list of *THE JOURNAL* together with advertising rates.

The following appointments recommended by President C. T. Ryland were approved: Committee on Mental Health: Dr. G. Wilse Robinson, Kansas City, Chairman; Dr. F. M. Grogan, St. Louis; Dr. E. D. Baskett, Columbia; Dr. G. A. Johns, St. Louis; Dr. E. F. Hootor, Farmington.

Committee on Medical-Legal Affairs: Dr. W. L. Allee, Eldon, Chairman; Dr. James R. McVay, Kansas City; Dr. Downey L. Harris, St. Louis; Mr. Walter H. Saunders, St. Louis; Mr. John E. Wilson, Kansas City; Mr. John D. McNeely, St. Joseph.

The establishment of a Medical Information Bureau was approved by the House of Delegates at its last session as ordered set up in the office of the Secretary under the direction of the Committee on Public Policy and the president was authorized to appoint a sufficient number of consultants from among the members of the Association for the Bureau to function efficiently.

The Committee decided that the matter of cooperation with Hon. Wallace Crossley, director of the Missouri Relief and Reconstruction Commission, Jefferson City, be placed in the hands of the Committee on Public Policy.

At the meeting of the Council held in Columbia on November 19, 1934, the General Committee on Arrangements for the 1935 Annual Session was appointed with Dr. Spence Redman, Platte City, as Chairman; Dr. A. J. Welch, Kansas City, and Dr. W. T. Elam, St. Joseph. Dr. Joseph V. Dauksys, Excelsior Springs, was appointed chairman of the Local Committee on Arrangements. Representatives of the Missouri Relief and Reconstruction Commission appeared before the Council and discussed medical and surgical attention for injured employes working on relief projects.

Upon the recommendation of the Committee on Auditing and Appropriations a budget for 1935 was approved as follows:

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| Salaries (Office and JOURNAL)..... | \$10,600.00 |
| JOURNAL | 6,600.00 |
| Legislation | 2,500.00 |
| Defense | 1,000.00 |
| Postage | 400.00 |
| Postgraduate Work | 1,000.00 |
| Printing and Stationery | 600.00 |
| Traveling Expenses, Secy. and Asst. Secy..... | 1,100.00 |
| Telephone and Telegraph | 500.00 |
| Rent of Office and Light..... | 1,300.00 |
| Meetings (Annual Session, Council, Ex. Com.).... | 1,500.00 |
| General Expense and Miscellaneous..... | 600.00 |

Upon the recommendation of President Ryland the following appointments were approved: Dr. Walter Baumgarten, St. Louis, as member of the Committee on Publication to fill the vacancy created by the death of Dr. M. A. Bliss, St. Louis; Dr. Charles H. Dixon, Moberly, as Councilor of the 10th district to fill the vacancy created by the death of Dr. Don A. Barnhart, Huntsville; Dr. W. H. Breuer, St. James, as a member of the Committee on Public Policy to fill the vacancy created by the resignation of Dr. W. T. Elam, St. Joseph; Dr. Dudley A. Conley, Columbia, as a member of the Committee on Medical Education and Hospitals to fill the vacancy created by the resignation of Dr. W. H. Breuer, St. James.

On motion the Secretary was instructed to take membership in the Missouri Academy of Science in the name of our Association.

Upon recommendation of the Committee on Postgraduate Work the President was authorized to appoint a Committee on Physical Therapy. Upon the recommendation of President Ryland the appointment of Dr. A. J. Kotkis and Dr. F. H. Ewerhardt, St. Louis, as members of a committee of five on physical therapy was ordered approved.

The Executive Committee has held three meetings since the last meeting of the Council at Columbia, November 19.

At a meeting held in St. Louis on January 23, 1935, the

Secretary was instructed to inform Dr. L. A. Calkins, University of Kansas, in the matter of the appointment of a standing committee on maternal welfare as follows: "The committee while realizing the importance of the proposition instructed me to say that it does not feel at this time justified in adding another committee to our already numerous activities because the Executive Committee felt that we could not do justice to such an important matter at this time."

The recommendation of the Program Committee that the last session of the House of Delegates at the Excelsior Springs Session for the election of officers and report of Nominating Committee be held at 8 a. m. on the third day of the session and that the meeting of the Council following this session of the House be held at noon luncheon, was approved.

Upon the recommendation of the Committee on Public Policy it was the feeling of the Committee that during this session of the state Legislature it would be a better policy to adopt a solid front against bills inimical to professional interest rather than to introduce and sponsor new legislation.

On motion the Secretary was instructed to inform all county medical society secretaries concerning proposed national and state legislation.

The Assistant Secretary reported that 141 copies of the resolution and questionnaire directed toward the elimination of free medical service to persons able to pay for medical care which was adopted at the St. Joseph Session of the Association had been mailed to hospitals together with a letter of explanation and request that the institution respond stating whether or not they were willing to adopt such a questionnaire; that replies had been received from thirty-four hospitals twenty-two of which signified that they were either already using a similar blank or would adopt the use of such a questionnaire, that eleven institutions were fraternal, governmental or state and could not apply the use of the questionnaire and one small hospital felt its clientele was too small and charity too poorly organized to make use of the questionnaire.

The Secretary was instructed to publish in *THE JOURNAL* a digest of the replies received.

Dr. W. L. Allee, member of the Committee on Public Policy, reported that he had held a conference with the Attorney General and representatives of the State Board of Health in Jefferson City, that the Board of Health contemplated increasing the fees for applicants from \$15 to \$25, provide compensation for board members of \$10 per day as well as an additional fee for the grading of papers, that applicants for medical examination must be 21 years of age, citizens of the United States and able to read and write the English language and must have completed a college course; and to raise the fee for midwives from \$5 to \$50; that there had been some discussion concerning the introduction of a bill providing for the annual registration of physicians in Missouri and a fee therefor; that the members of the conference agreed that no such bill would be introduced at this session; that there had been some further discussion concerning the introduction of a basic science bill but no action taken.

The Secretary was instructed to write Dr. W. T. Elam, member of the State Board of Health, accordingly and further inform him that if the State Board of Health introduced a basic science bill that the Association would cooperate with the Board and do everything possible to secure the passage of such legislation.

The following appointments recommended by President Ryland to complete the personnel of the Committee on Physical Therapy were approved: Dr. Chas. H. Neilson, St. Louis; Dr. Wm. J. Stewart, Columbia, and Dr. M. W. Pickard, Kansas City.

The Secretary was instructed to send a telegram to Dr. Jabez N. Jackson, Kansas City, expressing deep regret over his illness and the hope that he would soon be restored to his usual good health.

The Secretary was further instructed to write a letter to Mrs. A. J. Welch, widow of former Councilor Dr. A. J. Welch, expressing the regret and great sorrow of the members of the Executive Committee in the loss of Dr. Welch. Other letters were ordered written to Dr. J. T. Hornback, Nevada; Dr. J. J. Gaines, Excelsior Springs, and Dr. Geo. W. Vinyard, Jackson, expressing the Committee's regret over their illness.

At a meeting of the Executive Committee held in St. Louis February 17, 1935, the Secretary was instructed to write all county medical societies concerning the action of the House of Delegates of the A. M. A. which met in special session at Chicago, February 15 and 16, 1935, calling special attention to the resolutions which were unanimously adopted concerning sickness insurance and suggesting that each county medical society endorse the action of the House of Delegates of the A. M. A.

President Ryland's appointment of Dr. E. P. Heller, Kansas City, as Councilor of the 13th District to fill the unexpired term of Dr. A. J. Welch, deceased, was approved.

At the meeting of the Executive Committee held in St. Louis, April 23, 1935, Dr. Carl F. Vohs, St. Louis, was selected as our representative to attend a conference to be held in Chicago, April 27, 1935, called for the purpose of discussing plans for establishing medical service in the counties under the control and direction of county medical societies.

On motion the Secretary was instructed to extend an invitation to the American College of Physicians to hold their 1936 convention in St. Louis.

The resignation of Dr. J. T. Hornback, Nevada, as Councilor of the 16th District because of illness was accepted.

It was moved that the delegates of the Missouri State Medical Association to the A. M. A. be instructed to nominate Dr. B. F. Brainard, honor member of Jackson County Medical Society, and Dr. Wm. A. Schoemaker, honor member of St. Louis Medical Society, for Affiliate Fellowship to the A. M. A.

Dr. H. S. Gove, Director of the Division of Child Hygiene of the State Board of Health, was present by invitation and requested the cooperation of the Association in sponsoring a May Day program for diphtheria immunization in cooperation with the American Child Health Association, the A. M. A. and other agencies. Dr. Gove read a telegram from Dr. T. S. Bourke, president of the State Board of Health, as follows: "The State Board of Health will Okay anything that Dr. Goodwin or yourself may desire to do to suppress the spread of diphtheria in the state." The plan for the May Day program is as follows: The objective is to immunize all children between the ages of 6 months and 6 years, and to maintain this as a continuing service. It is planned to furnish toxoid for free immunization to indigent children under 2 years of age in communities of less than 10,000 population, the work to be done by local health officers and physicians in conjunction with local child health and May Day organizations be invited to cooperate. Those asked to cooperate were the Missouri State Medical Association and Auxiliary, the county medical societies, the Missouri Child Health Council, the Missouri Parent Teachers' Association, the American Legion, the Missouri Farm Women's Association, the Missouri Federated Clubs and other local or civic organizations.

Dr. W. F. Lunsford, statistician of the State Board of Health, also present by invitation, gave further details concerning the plan of diphtheria immunization.

On motion the Committee gave its approval to the plan and assured Dr. Gove of our cooperation with the State Board of Health in this program.

The Committee favored a plan proposed by Dr. M. Pinson Neal for the education of the doctor and the public in the matter of dangers of appendicitis and referred the plan to the Postgraduate Committee for further study and the formation of a definite plan of procedure.

On motion the Secretary was instructed to send a wire to Dr. Rexford L. Dively expressing the sympathy of the Committee on account of serious injuries received in an automobile accident.

Dr. H. M. Taylor, Jacksonville, Florida, and Mr. C. P. Loran, Birmingham, Alabama, executive officers of the Southern Medical Association, met with the Committee and discussed plans for the forthcoming annual session of the S. M. A. in St. Louis.

A. R. McCOMAS, Chairman.

The portion of the Report of the Council dealing with maternal welfare was discussed by Drs. Ralph R. Wilson, Kansas City; Dr. Buford G. Hamilton, Kansas City; Dr. E. Lee Dorsett, St. Louis; Dr. W. T. Stacy, St. Joseph; Dr. J. D. James, Springfield; Dr. A. R. McComas, Sturgeon; Dr. W. H. Breuer, St. James, and Dr. John D. Hayward, St. Louis. Many additional facts were brought out and Dr. Ralph R. Wilson, Kansas City, read the following statements of the American Committee on Maternal Welfare:

Statement of the American Committee on Maternal Welfare, Inc., Its Formation, Organization, Purposes and Activities

The American Committee on Maternal Welfare is an outgrowth of a joint committee on maternal welfare which was established many years ago through an action of the American Child Health Association, asking for the cooperation of the American Gynecological Society, the American Association of Obstetricians and Gynecologists and the Section on Obstetrics and Gynecology of the A. M. A. in forming a joint committee to promote the cause of maternal welfare. The committee has published certain standards and attempted, in various ways, to stimulate interest in its program.

The funds of the Committee have been very limited amounting to only a few hundred dollars a year, so that no extensive program has ever been possible. Recently this committee was incorporated and, having a somewhat larger budget, decided to further a little more complete national program. Although the funds are relatively small there is enough money to carry the work forward for a year provided we do not map out too extensive a program. The committee has insufficient funds to pay the traveling expenses of any of its members.

The organizations which are represented on our American Committee are as follow, the membership consisting of representatives from these organizations: American Association of Obstetricians, Gynecologists and Abdominal Surgeons; the American Child Health Association; the American College of Surgeons; the American Gynecological Society; the Section on Obstetrics and Gynecology of the American Medical Association; the American Public Health Association; the Central As-

sociation of Obstetricians and Gynecologists; the Chicago Maternity Center; the Children's Bureau of the Department of Labor; the Maternity Center Association of New York; the Pacific Coast Society of Obstetrics and Gynecology, and the Southern Medical Association.

The purposes of the Committee, as stated in the Articles of Incorporation, are to awaken and stimulate the interest of members of the medical profession in cooperating with public and private agencies for the protection of the health of mothers and their offspring before and during pregnancy and labor and after confinement, to the end that the conditions which menace and interfere with the health or life of the mother or the infant may be improved or prevented, and disease and disorder corrected and prevented, health promoted and life saved; to teach the principles and practices of general and personal hygiene and health to parents; to improve and generalize the standards and methods of training physicians, nurses and others dealing with problems of maternity; to study and promote the study of the problems involved in achieving the foregoing objects; to publish and circulate publications of any kind and description; to receive donations, and to purchase or acquire, receive, take, hold and manage such real and personal property by gift, grant, devise or bequest as may be necessary, useful or desirable for the purpose and objects of the corporation above set forth.

We are planning to map out certain standards for recommendations relative to the management and treatment of certain conditions for the benefit of the general practitioner particularly. The major program of the American Committee at the present moment is to promote and secure the formation of committees in all of the states for the furtherance of maternal welfare according to one of the following plans: First, that some men or women may bring the matter before the state medical society and have them form a state committee which in turn would sponsor the formation of similar local committees in each of the county societies. In this way a maternal welfare program would become an official part of the activities of the various state and component county societies. The other plan would be for our American Committee to appoint members in a given state to serve on a local committee which would attempt to further the development of a maternal welfare program in their own state through the various local organizations.

One of the first functions of the state committee will be to set up regional or county committees, either through the medical societies or independently of them, but with the idea that they will work in close conjunction with these local societies. The immediate work of both state and local committees will be to analyze the situation relative to maternity care in their own localities; to evaluate the facilities available for complete and adequate maternity care, and to work out plans for supplementing these facilities so that all mothers in their communities will receive good and adequate care. In some instances this has been partly or wholly done, but in other places practically nothing has been accomplished.

No doubt the details of these plans will vary greatly in various communities but the main purpose of the activities will be to see that all prospective mothers receive adequate prenatal care; that facilities for proper medical and nursing care are made available for home deliveries, and that proper hospital facilities are available for those cases presenting complications which require hospitalization. Subsequently, proper facilities should be available for postpartum care of the mother and postnatal care of the infant. This is a very general statement but the details will have to be worked out and adapted to the needs of the individual communities.

It is our thought to call a meeting of the American Committee, together with members of the state committees, probably for Wednesday afternoon of the next session of the American Medical Association in Atlantic City.

Dr. E. Lee Dorsett, St. Louis, moved that the Report of the Council be amended by accepting the invitation to create a Committee on Maternal Welfare. Seconded by Dr. W. H. Breuer, St. James, and carried.

Dr. A. R. McComas, Sturgeon, moved that the Report of the Council as amended be adopted. Seconded and carried.

Dr. W. H. Breuer, St. James, read the report of the Reference Committee on Amendments to the Constitution and By-Laws.

REPORT OF THE REFERENCE COMMITTEE ON AMENDMENTS TO THE CONSTITUTION AND BY-LAWS

Dr. W. H. Breuer, St. James, read the proposed amendment to Article V as follows:

ARTICLE V

Amend Article 5 by striking out "(1)" and the words "and (2) the officers of the Association enumerated in Section 1 of Article 9 of this Constitution," and by adding two new sections so that when amended said Article shall read:

Section 1. The House of Delegates shall be the legislative

body of the Association and shall consist of delegates elected by the component county societies.

Section 2. The House of Delegates shall meet for the purpose of organization at the call of the President of the Association on the first day of the annual meeting.

Section 3. The officers of the House of Delegates shall be a Speaker and a Vice Speaker elected by the delegates from their body, and the Secretary of the Missouri State Medical Association who shall be without vote.

Dr. Breuer stated that the Reference Committee recommended that the amendment be not adopted and he moved that the recommendation of the Reference Committee be concurred in. Seconded.

The question was discussed by Dr. Alphonse McMahon, St. Louis; Dr. Neil S. Moore, St. Louis; Dr. F. G. Nifong, Columbia; Dr. C. Edgar Virden, Kansas City; Dr. Curtis H. Lohr, St. Louis; Dr. Charles C. Dennie, Kansas City; Dr. H. A. Lowe, Springfield; Dr. F. G. Mays, Washington; Dr. Edgar W. Spinzig, St. Louis; Dr. J. Milton Singleton, Kansas City; Dr. C. E. Burford, St. Louis; Dr. E. Lee Dorsett, St. Louis, and Dr. W. H. Breuer, St. James.

After the discussion a rising vote was taken on the question and the motion to adopt the amendment failed to carry.

Dr. W. H. Breuer, St. James, read the proposed amendment to Article IX as follows:

ARTICLE IX

Amend Section 1, Article 9 by inserting after the word "Treasurer" the words "Speaker and Vice Speaker of the House of Delegates," so that when amended said Section 1 shall read:

Section 1. The officers of this Association shall be a President, a President-elect, three Vice Presidents, a Secretary, a Treasurer, a Speaker and Vice Speaker of the House of Delegates, and twenty-nine Councilors, more or less as shall be determined by the House of Delegates from time to time.

Amend Section 2, Article 9 by inserting after the word "annually" the words "by the House of Delegates"; by inserting after the word "year" in the fourth line the words "by vote of the members of the component county societies of the Councilor Districts" and by striking out the words "the Secretary and the Treasurer shall be elected by the Council," so that said Section 2, Article 9 shall read:

Section 2. The officers except the Councilors shall be elected annually by the House of Delegates. The terms of the Councilors shall be for two years; one half of the members of the Council shall be elected each year by vote of the members of the component county societies of the Councilor Districts. All these officers shall serve until their successors are elected and installed.

Dr. Breuer moved that the amendment be not adopted. Seconded and carried.

Dr. Breuer read the proposed amendment to Article XIII as follows:

ARTICLE XIII

Amend Article 13 by striking out the entire section and inserting in lieu thereof a new section to read:

The House of Delegates may amend any article of this Constitution by a two thirds vote of the Delegates present at any Annual Session provided that such proposed amendment shall have been presented in open meeting at the previous Annual Session, or by mail to each component society at least two months before any Annual Session, and by publication in two issues of the MISSOURI STATE MEDICAL JOURNAL before the annual meeting at which the proposed amendment is to be considered.

On motion of Dr. W. H. Breuer, St. James, duly seconded, this amendment was not adopted.

On motion of Dr. W. H. Breuer, St. James, duly seconded, the Report of the Reference Committee on Amendments to the Constitution and By-Laws as a whole was adopted.

REPORT OF THE REFERENCE COMMITTEE ON RESOLUTIONS

DR. RALPH R. WILSON, Kansas City, Chairman: No resolutions have come to hand and we therefore have no report to make.

On motion this report was accepted.

REPORT OF THE REFERENCE COMMITTEE ON MISCELLANEOUS AFFAIRS

Dr. B. G. Gosso, St. Charles: The only matter for consideration by our committee was the Report of the Committee on Cancer. Dr. Fischel's able report is heartily commended and we would recommend that members of his Committee be asked to speak in the smaller communities. By doing this the public will realize that we are their best friends and not interested in finances only. We would ask everyone to visit Dr. Fischel's exhibit in the lobby and look at it carefully. I move the adoption of this report.

Motion was seconded and carried.

Dr. E. HORACE JOHNSON, St. Louis: I move that a committee be appointed for the study of our Constitution and By-Laws for the purpose of such revision as will allow a more equitable representation of the membership.

Motion was seconded by Dr. Curtis H. Lohr, St. Louis, and carried.

THE PRESIDENT: The next order of business is to select the place of meeting for next year.

Dr. F. G. NIFONG, Columbia: I do not wish to make a speech. I live in Columbia, Missouri, Boone County, and we have a very favorable record for hospitality to maintain. We have always been considered hospitable, and we are an educational place, we think. We once had a famous court house with this inscription over the door: "O Justice, when from other habitations thou art barred, make this thy dwelling place." If some of you perhaps think you have not gotten justice you can find it in Columbia.

I am sure we would be pleased to have the Missouri State Medical Association meet with us again as we are now on the map in the center of the state with ample highways and railroads to get there, plenty of hotel facilities with quite as good an auditorium as this. We cordially invite you to come and I move that Columbia be selected as the next meeting place. Motion seconded.

Dr. H. L. KERR, Crane: I do not want to be out of order and I am not going to oppose Columbia; I am in favor of meeting there next year. But some time, maybe the next year, I want you to get ready for an invitation to come down in the sticks, down in the Ozark region, to Lake Taneycomo and those places down there. I think we could entertain you very well. We will arrange to have the fish biting, we have good roads, we have some railroads through that country yet—not all the tracks have been taken up; we have plenty of tomato juice and all that. We want you to come away down where the woodbine twineth and the whangdoodle chants his lay. I am just warning you that you will get an invitation to come down there some time and we want you to be ready for it.

THE PRESIDENT: Those in favor of accepting Dr. Nifong's invitation will make it known by rising. Unanimously carried.

On motion the House of Delegates adjourned until Wednesday morning.

Wednesday, May 8, 1935—Morning Session

The House of Delegates convened at 8:15 a. m. Wednesday, May 8, with the President, Dr. C. T. Ryland, Lexington, in the Chair.

The minutes of the previous meeting were read by the Secretary, Dr. E. J. Goodwin, St. Louis, and adopted as read.

ELECTION OF OFFICERS

Nomination for President-Elect

Dr. C. E. Burford, St. Louis, nominated Dr. R. A. Woolsey, St. Louis, for President-Elect.

Dr. W. T. Elam, St. Joseph, moved that the nominations be closed and the Secretary be instructed to cast the ballot of the House of Delegates for Dr. Woolsey

as President-Elect. Seconded by Dr. A. H. Marshall, Charleston, and carried.

Dr. E. J. Goodwin, Secretary, St. Louis: It gives me great pleasure to carry out the orders of the House of Delegates and cast the ballot of the Association for Dr. R. A. Woolsey, St. Louis, as President-Elect.

The President appointed Drs. Alphonse McMahon, St. Louis, and Dr. James R. McVay, Kansas City, to escort the President-Elect, Dr. Woolsey, to the platform.

Dr. C. Edgar Virden, Kansas City, moved that a committee of three be appointed to draft suitable resolutions memorializing Dr. Jabez N. Jackson. The motion was seconded and carried and the President appointed Dr. Morris B. Simpson, Dr. Charles C. Dennie and Dr. C. S. Capell, Kansas City, to prepare a memorial for Dr. Jabez N. Jackson.

It was moved, seconded and carried that the Delegates of the Association to the American Medical Association be requested to sponsor and support the invitation extended by the Jackson County Medical Society to the American Medical Association to hold its 1936 convention in Kansas City.

Dr. W. L. Allee, Eldon, Chairman of the Committee on Nominations, submitted the following report:

Report of the Committee on Nominations

For delegates to the American Medical Association: Delegate, Dr. James R. McVay, Kansas City; alternate, Dr. M. Pinson Neal, Columbia. Delegate, Dr. Emmett P. North, St. Louis; alternate, Dr. C. E. Burford, St. Louis.

For Vice Presidents: Dr. W. A. Braecklein, Higginsville; Dr. John D. Hayward, St. Louis; Dr. E. B. Robichaux, Excelsior Springs.

For Councilors:

- 2nd District, Dr. W. T. Elam, St. Joseph.
- 4th District, Dr. J. B. Wright, Trenton.
- 6th District, Dr. J. S. Gashwiler, Novinger.
- 8th District, Dr. B. Kurt Stumberg, St. Charles.
- 10th District, Dr. C. H. Dixon, Moberly.
- 12th District, Dr. Spence Redman, Platte City.
- 14th District, Dr. C. T. Ryland, Lexington.
- 16th District, Dr. C. W. Luter, Butler.
- 18th District, Dr. W. L. Allee, Eldon.
- 20th District, Dr. C. H. Neilson, St. Louis.
- 22nd District, Dr. B. W. Hays, Jackson.
- 24th District, Dr. T. W. Cotton, Van Buren.
- 26th District, Dr. W. H. Breuer, St. James.
- 28th District, Dr. W. M. West, Monett.
- 30th District, Dr. R. B. Denny, Creve Coeur.

On motion of Dr. W. L. Allee, Eldon, seconded by Dr. A. H. Marshall, Charleston, the report was adopted and the nominees were declared duly elected to the offices named in the report of the Committee on Nominations.

The President appointed Dr. Emsley T. Johnson, Kansas City, and Dr. John Aull, Kansas City, to escort the President-Elect, Dr. E. Lee Miller, Kansas City, to the platform for installation.

Dr. E. Lee Miller, Kansas City, was installed as President of the Association for 1935-1936. Dr. Miller submitted the following nominations for appointment on standing committees:

- Dr. W. T. Coughlin, St. Louis, Committee on Scientific Work.
- Dr. Rexford L. Diveley, Kansas City, Committee on Post-graduate Course.
- Dr. W. A. Bloom, Fayette, Committee on Publication.
- Dr. W. H. Breuer, St. James, Committee on Public Policy.
- Dr. M. L. Klinefelter, St. Louis, Committee on Defense.
- Dr. Dudley S. Conley, Columbia, Committee on Medical Education and Hospitals.
- Dr. D. A. Robnett, Columbia, Committee on Cancer.
- Dr. Carl H. Vohs, St. Louis, Committee on Medical Economics.
- Dr. E. F. Hoctor, Farmington, Committee on Mental Health.

Dr. F. G. NIFONG, Columbia: I move the acceptance of the committees appointed by Dr. Miller. Seconded by Dr. A. H. Marshall, Charleston, and carried.

Dr. ALPHONSE McMAHON, St. Louis: I take great

pleasure in presenting to the House of Delegates your President-Elect for 1935-1936, Dr. R. A. Woolsey, St. Louis.

Dr. R. A. WOOLSEY, St. Louis: It is needless to say that I am overwhelmed by the concerted action of the entire Association in electing me to this, the highest office of the Association. I want to pledge that during my administration I will give you the very best efforts of which I am capable to make the Association as good, if possible, as it has been the last year, and our meeting next year our best meeting.

On motion the House of Delegates adjourned *sine die*.

MEETING OF THE COUNCIL

Ballroom, Elms Hotel

Monday, May 6, 1935—First Session

The first meeting of the Council convened following the adjournment of the House of Delegates, Monday, May 6, 1935, the Chairman, Dr. A. R. McComas, Surgeon, presiding. Roll call showed the following Councilors present:

- 1st District.....O. C. Gebhart, Oregon
- 2nd District.....W. T. Elam, St. Joseph
- 4th District.....J. B. Wright, Trenton
- 6th District.....J. S. Gashwiler, Novinger
- 7th District.....W. D. Pipkin, Monroe City
- 8th District.....B. K. Stumberg, St. Charles
- 9th District.....A. R. McComas, Surgeon
- 10th District.....Chas. H. Dixon, Moberly
- 11th District.....J. H. Timberman, Chillicothe
- 12th District.....Spence Redman, Platte City
- 13th District.....E. P. Heller, Kansas City
- 14th District.....W. A. Braecklein, Higginsville
- 15th District.....L. J. Schofield, Warrensburg
- 17th District.....Guy Titsworth, Sedalia
- 18th District.....E. C. Shelton, Eldon
- 19th District.....J. S. Summers, Jefferson City
- 20th District.....C. H. Neilson, St. Louis
- 21st District.....N. W. Jarvis, Festus
- 24th District.....T. W. Cotton, Van Buren
- 25th District.....P. S. Tate, Farmington
- 26th District.....W. H. Breuer, St. James
- 27th District.....J. C. B. Davis, Willow Springs
- 28th District.....W. M. West, Monett
- 29th District.....R. M. James, Joplin
- 30th District.....R. B. Denny, Creve Coeur
- 31st District.....H. A. Lowe, Springfield

Dr. A. R. McComas, Surgeon, read the Report of the Executive Committee of the Council which on motion of Dr. C. H. Dixon, Moberly, duly seconded, was accepted and made the report of the Council to the House of Delegates.

On motion of Dr. W. H. Breuer, St. James, duly seconded, the President's recommendation of a basic science law was referred to the Committee on Public Policy.

On motion of Dr. W. H. Breuer, St. James, duly seconded, the President's recommendation regarding rearrangement of some of the Councilor Districts was referred to the Council for action at the next Annual Session.

On motion of Dr. W. H. Breuer, duly seconded, the President's recommendation of the appointment of a Maternal Welfare Committee was disapproved.

On motion of Dr. W. T. Elam, St. Joseph, duly seconded, the President's recommendation of the appointment of county medical service bureaus was adopted.

On motion of Dr. W. T. Elam, St. Joseph, duly seconded, the recommendation of the Secretary that a medical advisor to the State Relief Administrator be appointed was adopted.

On motion of Dr. W. H. Breuer, St. James, the Re-

port of the Treasurer was referred to the Auditing Committee.

Dr. A. R. McComas, Sturgeon, chairman, appointed the Auditing Committee as follows: Dr. J. S. Gashwiler, Novinger; Dr. J. C. B. Davis, Willow Springs, and Dr. R. B. Denny, Creve Coeur.

On motion of Dr. O. C. Gebhart, Oregon, duly seconded, the report of the Committee on Public Policy was adopted.

On motion of Dr. C. H. Dixon, Moberly, duly seconded, the Report of the Committee on Publication was adopted.

On motion of Dr. C. H. Dixon, Moberly, duly seconded, the Report of the Committee on Defense was adopted and referred to the Auditing Committee.

On motion, the Council adjourned.

Wednesday, May 8, 1935—Second Meeting

The second meeting of the Council convened May 8 following the final meeting of the House of Delegates, the Chairman, Dr. A. R. McComas, Sturgeon, presiding.

The election of officers for 1935-1936 resulted in the election of the following:

Chairman of the Council, Dr. A. R. McComas, Sturgeon.

Vice Chairman of the Council, Dr. W. H. Breuer, St. James.

Treasurer, Dr. John R. Caulk, St. Louis.

Secretary-Editor, Dr. E. J. Goodwin, St. Louis.

Assistant Secretary and Business Manager, Mr. E. H. Bartelsmeyer, St. Louis.

Executive Committee, Dr. A. R. McComas, Sturgeon; Dr. W. L. Allee, Eldon; Dr. W. H. Breuer, St. James.

Secretary of the Council, Dr. E. J. Goodwin, St. Louis.

The Auditing Committee reported that they found the books of the Association correct and well kept.

On motion the Council adjourned *sine die*.

MINUTES OF THE GENERAL MEETING

Ballroom, Elms Hotel, Excelsior Springs

Monday, May 6, 1935—Evening Session

The scientific sessions were held in the Ballroom of the Elms Hotel, the first convening at 8 o'clock, Monday evening, May 6, with the President, Dr. C. T. Ryland, Lexington, in the Chair. Members and guests presented addresses as follow:

Dr. A. J. Kotkis, St. Louis, "The Role of Physical Therapy in Medicine Today."

Dr. J. S. Coulter, Chicago, "Physical Therapy in Chronic Arthritis."

Tuesday, May 7, 1935—Morning Session

Dr. C. T. Ryland, Lexington, Address of the President, "Our Obligation to Organized Medicine."

Dr. E. Lee Miller, Kansas City, Address of the President-Elect, "The Doctor of Tomorrow."

Dr. John R. Caulk, St. Louis, "Chronic Pyelonephritis in Infants and Children."

Dr. Grayson Carroll, St. Louis, "The Problem of Painless Urological Instrumentation."

Dr. C. E. Burford, St. Louis, "Tuberculosis of the Genito-Urinary Tract."

Dr. Warren R. Rainey, St. Louis, "Complications Developing After Operation for Rectal Fistula."

Dr. Oswald S. Lowsley, New York, "New Developments in Renal Surgery."

Tuesday, May 7, 1935—Afternoon Session

Drs. Otto Schwarz and Richard Paddock, St. Louis, "Caesarean Section: A Discussion of Its Indications and Incidence in the St. Louis Maternity Hospital."

Dr. R. Lee Hoffmann, Kansas City, "Prostatic Enucleations Compared to the Transurethral Resections."

Dr. D. K. Rose, St. Louis, "Urinary Incontinence."

Dr. Emsley T. Johnson, Kansas City, "Carbontetrachloride Poisoning: Experimental Data and Two Clinical Cases With Necropsy Findings."

Dr. Harry M. Gilkey, Kansas City, "Heart Disease in Children."

Dr. Peter T. Bohan, Kansas City, "Quinidine Sulphate: Its Actions and Uses."

Dr. Warren H. Cole, St. Louis, "Differential Diagnosis and Treatment of Chronic Appendicitis."

Drs. W. T. Coughlin and J. M. McCaughan, St. Louis, "Tumors in the Head of the Pancreas: The Value of Cholecystenterostomy."

Dr. Claude J. Hunt, Kansas City, "Diagnosis and Surgical Management of Cancer of the Stomach."

Dr. Fred W. Bailey, St. Louis, "Early Diagnosis in Obscure Abdominal Diseases."

Dr. Wm. J. Gallagher, St. Louis, "Hydrocephalus."

Dr. Roland Hill, St. Louis, "Unusual Case of Foreign Body in the Abdomen."

Tuesday, May 7, 1935—Evening Session

Dr. R. G. Leland, Chicago, "Medical Care for the American People."

Discussed by Dr. E. P. Heller, Kansas City, and Dr. Carl F. Vohs, St. Louis.

Wednesday, May 8, 1935—Morning Session

Dr. John J. Hammond, St. Louis, "Pneumothorax Treatment of Lobar Pneumonia."

Dr. Sam Snider, Kansas City, "Diagnosis and Non-surgical Treatment of Bronchiectasis."

Dr. Charles F. Sherwin, St. Louis, "Principles of Safety in Thyroid Surgery."

Dr. L. W. Dean, St. Louis, "Treatment of the Diseases of the Nasal Sinuses in Infants and Young Children."

Dr. Evan S. Connell, Kansas City, "The Application of Ovarian Therapy to Nose and Throat Surgery."

Dr. Ralph A. Kinsella, St. Louis, "Treatment of Chronic Arthritis."

Dr. J. Albert Key, St. Louis, "Diagnosis and Treatment of Acute and Chronic Osteomyelitis."

Dr. August A. Werner, St. Louis, "Adrenal Hypercortical and Hypermedullary Syndromes."

Wednesday, May 8, 1935—Afternoon Session

Dr. C. Edgar Virden, Kansas City, "Radiation Therapy in the Treatment of Disease."

Dr. Harvey D. Lamb, St. Louis, "Hereditary Blindness in Missouri."

Dr. Charles C. Dennie, Kansas City, "Heat in the Treatment of Somatic Syphilis."

Dr. Frank D. Dickson, Kansas City, "Fracture of the Neck of the Femur."

Dr. Frank C. Neff, Kansas City, "The Changing Practices in Infant Feeding."

Dr. Buford G. Hamilton, Kansas City, "Preliminary Stage of Labor."

Dr. G. Wilse Robinson, Kansas City, "Physical Factors in Development of Psychoses."

Dr. George E. Knappenberger, Kansas City, "Per-nicious Anemia."

Dr. John W. Stewart, St. Louis, "Complications of Appendicitis: Report of Cases."

Dr. Joseph Dauksys, Excelsior Springs, "Schüller-Christian Disease."

Thursday, May 9, 1935—Morning Session

Dr. E. J. Nienstedt, Blodgett, "Thoracopagus in a Case of Otherwise Normal Twins."

Dr. G. O. Broun, St. Louis, "Encephalitis."

Dr. George H. Thiele, Kansas City, "Clinical Manifestations of Anorectal Diseases."

Dr. T. S. Lapp, Fulton, "An Institutional Outbreak of Shiga Dysentery and Its Control."

Thursday, May 9, 1935—Afternoon Session

The Thursday afternoon session on Diseases of the Eye, Ear, Nose and Throat convened at 1:30 p. m., Dr. Robert L. Forgrave, St. Joseph, presiding.

Dr. J. H. Timberman, Chillicothe, "The Problem of the Ethmoid."

Dr. J. S. Summers, Jefferson City, "Myasthenia Gravis."

Dr. Arthur M. Alden, St. Louis, "The Reaction of Allergic Phenomena to Ionization."

Dr. C. S. O'Brien, Iowa City, "Ocular Tuberculosis."

Dr. J. S. Knight, Kansas City, "Bronchoscopy: A Diagnostic Aid."

Dr. Sam E. Roberts, Kansas City, "Impaired Hearing." Read by title.

Dr. Oliver Gilliland, Kansas City, "Diagnosis and Treatment of Imaginary Diseases of the Ear, Nose and Throat." Read by title.

On motion of Dr. C. R. Bruner, Columbia, seconded by Dr. Sam E. Roberts, Kansas City, the chairman was instructed to appoint a committee to confer with the Committee on Scientific Work and make arrangement for papers on eye, ear, nose and throat work to appear on the general program at the 1936 Session.

The chairman appointed on this committee Dr. C. R. Bruner, Columbia; Dr. John L. Myers, Kansas City, and Dr. C. W. Tooker, St. Louis.

On motion the Seventy-eighth Annual Session of the Missouri State Association adjourned *sine die*.

ANNUAL MEETING OF THE MISSOURI SOCIETY OF MEDICAL SECRETARIES

Tuesday, May 7, 1935—Elms Hotel

The Society of Medical Secretaries held its annual meeting Tuesday evening, May 7, in the Clubroom of the Elms Hotel, Dr. H. L. Mantz, Kansas City, presiding.

Following the banquet the election of officers resulted as follows: President, F. G. Mays, Washington; vice president, E. B. Robichaux, Excelsior Springs; secretary, W. E. Koppenbrink, Higginsville.

Dr. Mantz announced that there was no time for long speeches and called on the following speakers for short talks:

Dr. C. T. RYLAND, Lexington: I have just one thing to say tonight, and I have said it before—that Dr. Mantz is the best county secretary in the State of Missouri.

Dr. E. LEE MILLER, Kansas City: I recognize that we cannot have a State Medical Association without county societies, and I recognize that the secretary of the county society is a significant person in that society.

When you have a good county society you will have a good State Association, and I will ask you men to continue this year as you have in the past because we expect a lot of you.

Dr. W. W. BAUER, Chicago: All I want to say is that the Bureau of Health and Public Instruction of the American Medical Association is at your service, county secretaries, and will try to help you solve the problems coming before you with particular reference to public health and health education.

Dr. R. G. LELAND, Chicago: I suspect that of all the bureaus and councils of the American Medical Association, the county secretaries are as much benefited by the Bureau on Medical Economics as any. At this time I want to express my appreciation of the promptness with which you have sent us such information as has been at your disposal. We would like to serve

you in the same way as the Bureau of Health and Public Instruction. Anything we can do for you we will gladly do. The Bureaus are your Bureaus.

Dr. A. R. McCOMAS, Sturgeon: I see a great many faces that I have seen in years gone by, and, on the other hand, I miss a few. I would like to propose at this time that a telegram be sent to Dr. J. T. Hornback, Nevada, who is too ill to be present. I think we all realize the great work he did in years past and we should let him know that we appreciate it.

Dr. R. A. WOOLSEY, St. Louis: This has been a very enjoyable evening. We have had a good dinner and I have especially enjoyed the corn bread. I appreciate being here and enjoying the meal with you.

Dr. E. J. GOODWIN, St. Louis: Mr. Chairman, Ladies and Gentlemen: I am overwhelmed by your cordial greeting. I am sorry that in recent years I have not been able to do what in former years I did, and took great pleasure in doing, that is, visiting with the various societies at their meetings. Happily, the Council of the Association provided for me and for yourselves a person who is using his legs for mine—Mr. Bartelsmeyer—who visits you when he can and conveys to you news of our various activities and seeks to find out how the Association can further the welfare and progress of the county societies. Secretaries, Officers, and Councilors, let me say just one thing—something I have said many times—that upon the county society secretaries depends the welfare and growth and strength of the state medical associations and the American Medical Association.

Dr. F. G. NIFONG, Columbia: I have no speech to make but I always come to this dinner when I get a chance. I have a great admiration for the secretary of the county medical society. He is a worker, no question of that. Like a dairy farmer, he works morning, noon and night.

Dr. E. B. ROBICHAUX, Excelsior Springs: As I look around I see several men who have attended a number of these meetings but I imagine most of you, like myself, miss one person who has attended these dinners for a long time—Dr. J. J. Gaines. I think the Missouri State Medical Association and organized medicine lost a great man in Dr. Gaines, and in his memory I wish to mention his name at this time.

Dr. E. J. GOODWIN, St. Louis: I move, Mr. Chairman, that a message be sent to Mrs. Gaines conveying to her our regret at the loss of one of the most energetic, faithful and earnest workers the Association has ever had when Dr. J. J. Gaines of Clay County passed away.

Motion seconded by Dr. W. H. Breuer and carried.

Dr. R. B. DENNY, Creve Couer: I want to say to you that I think the work of the county secretaries is most important to the Missouri State Medical Association. I have been president of the St. Louis County Society and my work did not amount to much; but the secretary did the work and our society has grown since I joined from 121 to 134. As president I had very little to do with it—it was the secretary who did the work. I wish to thank you for the invitation to be present tonight.

Dr. JOSEPH DAUKSYS, Excelsior Springs: I am mighty glad to see you all here. I know that I, and my committee, have had a lot of fun in getting ready for you and so far things seem to have gone smoothly. We do hope that everything will go off right and that you will finish the convention at least as pleasantly as most of you have told me it has begun. Dr. Nifong spoke of "apple sauce" being good in a medical diet. I do not know how much of that is "apple sauce," but I know we are pleased to have you here and want you to come again.

Dr. D. S. CONLEY, Columbia: I just want to support

Dr. Fong by telling you that the boys in Columbia are tickled to death to have you come and will show you a good time. I thank you for inviting me to come to your dinner where I knew I had good things coming.

MR. E. H. BARTELSMEYER, St. Louis: I have had so much work to do getting ready for this meeting that I cannot be serious tonight. I came through Excelsior Springs three weeks ago, making arrangements for the meeting. In doing so it was necessary for me to learn the names of the various rooms in the hotel and where they were situated. While making arrangements for this dinner tonight I asked the name of this room. I

asked a waiter, and he said he did not know of any room downstairs; then I asked the maitre d'hotel and he did not know of any room downstairs. Then I went to the manager, and he said "It is called the club room." Then I said to Dr. Dauksys that I had considerable trouble in learning the name of his room downstairs, and he said, "Let me whisper in your ear that they have just opened a little gaming room down there." So after the show is over tonight, this room is at your service.

THE CHAIRMAN: This ends our dinner meeting. Until next year we will carry on.

REGISTRATION AT SEVENTY-EIGHTH ANNUAL SESSION

Adams, C. F., Jefferson City
Alden, Arthur M., St. Louis
Allee, James, Eldon
Allee, W. L., Eldon
Altheide, J. P., St. Louis
Arbuckle, M. F., St. Louis
Aschmann, Theodore H., Kansas City
Asher, A. G., Kansas City
Atkins, J. A., Lamar
Atwood, W. G., Carrollton
Aull, John, Kansas City
Austin, Charles S., Carrollton
Bailey, Fred W., St. Louis
Baird, J. E., Excelsior Springs
Barger, J. Nelson, Albany
Barney, R., Chillicothe
Barron, W. Harry, Fredericktown
Bartelsmeyer, E. H., St. Louis
Bay, Harry, Cole Camp
Baysinger, S. L., Rolla
Beal, H. A., Kansas City
Beatie, Wm. R., Springfield
Beil, J. Wallace, Kansas City
Beil, Wallace C., Kansas City
Belden, Edgar A., Marshall
Berger, Harry C., Kansas City
Bergmann, Victor H., Kansas City
*Beyreuther, P. F., St. Louis
Bickel, V. T., Lamar
Black, W. Byron, Kansas City
Bloom, W. A., Fayette
Bohan, P. T., Kansas City
Brady, C. H., Chillicothe
Braecklein, W. A., Higginsville
Brashear, H. C., Mexico
Bredon, D. R., Kansas City
Breuer, R. E., Newburg
Breuer, W. H., St. James
Broun, Goronwy O., St. Louis
Bruner, Claude R., Columbia
Brunner, Ethan E., Carrollton
*Buckley, J. H., Ft. Smith, Arkansas
Burford, C. E., St. Louis
Burke, J. P., Jr., California
Butler, Fred E., Salem
Butler, T. R., Lexington
Byrne, John I., St. Joseph
Callaway, L. M., Kansas City
Calvert, Lewis C., Weston
Campbell, A. J., Sedalia
Campbell, Frederick B., Kansas City
Capell, Clarence S., Kansas City
*Carlson, H. E., Kansas City, Kansas
Carroll, Grayson, St. Louis
*Case, Paul H., Kansas City
Casebolt, M. B., Kansas City
*Caspey, S., New York
Castles, John E., Kansas City
Caulk, John R., St. Louis
Chambers, J. Q., Jr., Kansas City

Cheek, W. C., Springfield
Chenoweth, L. C., Joplin
Chilton, J. C., Hannibal
Clark, H. J., Excelsior Springs
Clark, Henry M., Platte City
*Cleary, Leo A., Chicago
Cole, Paul F., Springfield
Cole, Warren H., St. Louis
Collier, A., Chillicothe
Conley, D. S., Columbia
Connell, Evan S., Kansas City
*Conns, H. H., Kansas City
Conrad, Harry S., St. Joseph
*Cook, Albert, Tulsa, Okla.
Cook, R. C., Excelsior Springs
Cook, Thos. F., Richmond
*Coons, George D., Kansas City
Cope, J. Q., Lexington
Cotton, T. W., Van Buren
Coughlin, W. T., St. Louis
*Coulter, J. S., Chicago
Craig, Owen W. D., St. Joseph
Crank, A. C., Odessa
Craven, Y. D., Excelsior Springs
Crawford, R. C., Excelsior Springs
*Crockett, I., Columbia
Cunningham, Eric A., Louisiana
Curdy, Robert J., Kansas City
Curry, Dwight E., Kansas City
Dann, D. S., Kansas City
Dauksys, Joseph, Excelsior Springs
*Davis, C. B., Kansas City
Davis, Charles B., Walker
Davis, H. B., Kansas City
Davis, J. C. B., Willow Springs
Dean, John McH., St. Louis
Dean, L. W., St. Louis
Delamater, G. A., Butler
*Delong, E. E., St. Joseph
DeMotte, John, Kansas City
Dennie, Charles C., Kansas City
Denny, R. B., St. Louis
*DeSay, W. D., Excelsior Springs
DeTar, B. E., Joplin
Deweese, Everett R., Kansas City
Dickson, F. D., Kansas City
Dixon, C. H., Moberly
Dixon, J. R., Linneus
*Dolan, A. N. J., Excelsior Springs
Donaldson, Clyde O., Kansas City
Dorsett, E. Lee, St. Louis
Dowell, D. M., Chillicothe
Dowell, George S., Braymer
*Downs, H. E., Excelsior Springs
Dumbauld, B. A., Webb City

Duncan, Ralph E., Kansas City
Dunkeson, E. B., Lathrop
Dyer, D. P., Sedalia
Edens, L. M., Cabool
Elam, W. T., St. Joseph
Eldridge, Charles J., Kansas City
Elliott, B. L., Kansas City
Elliott, J. R., Kansas City
*Ellis, C., Chillicothe
*Ellis, Marion, Kansas City
Engman, Martin F., St. Louis
Ergas, Jose, St. Joseph
*Erickson, E. W., Glenview, Illinois
Eubank, A. E., Kansas City
Eubank, D. M., Nevada
Ferris, C. R., Kansas City
Fischel, Ellis, St. Louis
Forgrave, H. S., St. Joseph
Forgrave, L. R., St. Joseph
Forgrave, Paul, St. Joseph
Foster, Robert L., St. Louis
Fraker, R. D., Kansas City
Frame, Homer F., Mountain Grove
Franke, W. F., Hannibal
Fredendall, George W., Lexington
Frick, J. P., Kansas City
Frischer, Julius, Kansas City
Funsch, Edwin C., St. Louis
Fuson, L. H., St. Joseph
Fuson, Wm. A., Trenton
*Fyke, G., St. Louis
Gaines, G. W., Richmond
Gallagher, J. F., St. Louis
Gallagher, Wm. J., St. Louis
Gashwiler, J. Schooling, Novinger
Gaston, Ralph E., Webster Groves
Gay, L. P., St. Louis
Gebhart, O. C., Oregon
Geiger, Charles, St. Joseph
Gentry, E. N., Jr., Kansas City
Gestrung, H. A., Kansas City
Gilkey, Harry M., Kansas City
Gilles, C. L., Kansas City
Gillham, Frank W., Jefferson City
Gilliland, Alvin O., Cameron
Gilliland, O. S., Kansas City
Ginsberg, A. Morris, Kansas City
Glennon, Wm. P., St. Louis
Goldberg, I. E., Polo
Goldman, Max, Kansas City
Good, Clarence A., St. Joseph
Goodrich, Howard, Hannibal
Goodson, Wm. H., Liberty
Goodwin, E. J., St. Louis
Gossow, B. G., St. Charles
Gove, H. S., Jefferson City
Grace, H. M., Chillicothe
Grace, J. F., Excelsior Springs
Gradwohl, R. B. H., St. Louis

Green, L. D., Richmond
Greenberg, Charles, St. Joseph
Greene, C. W., Columbia
Grim, George E., Kirksville
Gum, P. D., West Plains
Gunn, A. J., Versailles
Gunn, W. G., Versailles
Guthrie, John A., Neosho
*Hall, Major John R., Omaha, Nebr.
Hall, Thomas B., Kansas City
Hamilton, Buford G., Kansas City
Hamilton, Hugh G., Kansas City
Hammond, John J., St. Louis
*Hanicke, Erich, Kansas City
Hanks, Ralf, Fulton
Hansen, W. J., St. Joseph
*Hardegree, H. C., Excelsior Springs
*Hardman, W. W., Leavenworth, Kansas
Harms, F. L., Salisbury
Harrison, J. F., Mexico
Hassett, Henry A., St. Louis
Hayden, John G., Kansas City
Hays, B. W., Jackson
Hayward, John D., St. Louis
Heller, Edward P., Kansas City
Henrickson, Hardin M., Poplar Bluff
Henry, S. D., Excelsior Springs
Herington, Warner, Green City
Hershey, J. H., St. Louis
Hill, Roland, St. Louis
*Hill, W., St. Louis
Hoctor, Emmett F., Farmington
Hoffman, J. S., Kansas City
Hoffmann, R. Lee, Kansas City
Hogan, Frank E., Mound City
*Hogan, Geo. R., Chicago
Hogue, F. S., Kansas City
Holley, A. E., St. Joseph
Holliday, Morgan Lee, Fillmore
Hollingsworth, Ray S., Clinton
Hornback, E. T., Hannibal
Howard, Francis A., Higginsville
Howden, T. L., St. Joseph
Howell, J. A., Excelsior Springs
Hoxie, Geo. H., Kansas City
Hughes, S. B., Clinton
Hunt, Claude J., Kansas City
Hunt, P. F., Kansas City
Hyndman, C. E., St. Louis
*Isle, Anna C., Kansas City
Jackson, Wm. R., Maryville
James, Ed. D., Joplin
James, J. D., Springfield
James, Luther S., Blackburn
James, R. M., Joplin

*Visitor

- James, W. J., Excelsior Springs
 Jones, Vincel, Cameron
 Jarvis, N. W., Festus
 Jenkins, James, St. Charles
 Jennings, P. W., Canton
 Johns, George A., St. Louis
 Johnson, E. Horace, St. Louis
 Johnson, E. T., Kansas City
 Johnson, G. D., Maysville
 Johnson, W. E., Warrensburg
 Johnston, E. L., Concordia
 Jolley, J. F., Mexico
 Jones, A. E., Kansas City
 Jones, H. L., Kansas City
 Jones, J. Lawrence, Kansas City
 Kauffman, D. E., St. Louis
 Keith, W. E., Kansas City
 Keller, J. M., St. Louis
 Kemp, Thomas J., St. Louis
 Kerr, Homer L., Crane
 Key, J. Albert, St. Louis
 Kieffer, R. S., St. Louis
 Kinsella, Ralph A., St. Louis
 *Kirkpatrick, C. F., Ashland, Nebraska
 Knappenberger, George E., Kansas City
 Knight, John S., Kansas City
 Koch, Otto W., St. Louis
 Koppentrink, Walter E., Higginsville
 Kotkis, A. J., St. Louis
 Krause, Irl B., Jefferson City
 Krebs, Frank J. V., St. Louis
 Kuhn, H. P., Kansas City
 Kulowski, Jacob, St. Joseph
 Lamb, Harvey D., St. Louis
 Langsdorf, Herbert S., St. Louis
 Lapp, John G., Kansas City
 Lapp, Harry C., Kansas City
 Lapp, Titus S., Fulton
 Lau, G. A., St. Joseph
 Lawrence, John R., Marshall
 Leitch, C. G., Kansas City
 *Leland, R. G., Chicago
 Lemoine, Albert N., Kansas City
 *Levin, J. J., Kansas City
 Lissack, Edmund, Concordia
 Liston, E. H., Nevada
 Liston, Odus, Oak Grove
 Lockwood, I. H., Kansas City
 Lohr, C. H., St. Louis
 Long, David S., Harrisonville
 Long, Frank B., Sedalia
 *Loranz, C. P., Birmingham, Alabama
 Lowe, H. A., Springfield
 Lower, Mary J., Kansas City
 Lowry, Charles F., Kansas City
 *Lowsley, O. S., New York City
 Lunsford, W. F., Jefferson City
 Lusk, C. A., Butler
 Lusk, C. A., Jr., Rolla
 McAlester, A. W., Kansas City
 McCallum, F. M., Kansas City
 McCaughan, J. M., St. Louis
 *McCluskey, H. H., Kansas City
 McComas, A. R., Sturgeon
 McCormick, F. L., Moberly
 McCracken, S. R., Excelsior Springs
 McGaugh, E. T., Jefferson City
 McGaughey, H. D., Joplin
 McGuire, C. A., Kansas City
 McGuire, Wm. A., St. Louis
 McKeever, Duncan C., Kansas City
 McKenna, Henry I., Kansas City
 McLeod, J., Kansas City
 McMahon, Alphonse, St. Louis
 McPherson, Owen P., Kansas City
 McVay, James R., Kansas City
 Major, Hermon S., Kansas City
 Maltby, Burton, Liberty
 Mann, Frank, Wellington
 Manning, D. F., Marshall
 Mantz, Herbert L., Kansas City
 Mark, Ernest G., Kansas City
 Marshall, Alfred H., Charleston, Iowa
 Martin, W. E., Odessa
 *Martz, Del. St. Louis
 Mason, R. E., St. Louis
 *Matheson, J. H., Iowa City
 Matthews, Francis H., Liberty
 Mays, Frank G., Washington
 Miller, E. A., St. Joseph
 Miller, E. Lee, Kansas City
 Miller, R. M., Belton
 Minton, Wm. H., St. Joseph
 Monroe, Alfred E., Sedalia
 Montgomery, C. C., Kansas City
 *Moore, E. M., Kansas City
 Moore, Milton M., Dearborn
 Moore, Neil S., St. Louis
 Moore, W. A., St. Joseph
 *Morgan, D. A., Excelsior Springs
 Morley, Frank R., Sedalia
 Morton, Daniel, St. Joseph
 Mudd, James L., St. Louis
 Muensch, Albert H., St. Joseph
 Munsch, Augustin P., St. Louis
 Murray, L. V., Pleasant Hill
 Musgrave, J. E., Excelsior Springs
 Myers, B. L., Kansas City
 Myers, E. Lee, St. Louis
 Myers, J. L., Kansas City
 Myers, W. A., Kansas City
 Neal, J. P., Kansas City
 Neal, M. Pinson, Columbia
 *Neece, I. H., Decatur, Ill.
 Neff, Frank C., Kansas City
 Neff, Robert L., Joplin
 Neely, James E., Kansas City
 Neilson, C. H., St. Louis
 Neinstedt, E. J., Blodgett
 Neubeiser, B. L., St. Charles
 Nifong, F. G., Columbia
 Nisbet, Eliga B., Odessa
 North, Emmett P., St. Louis
 *Nunn, P. M., Kansas City, Kansas
 *O'Brien, C. S., Iowa City
 Ockerblad, N. F., Kansas City
 O'Connell, John, Overland
 Ogilvie, J. H., Kansas City
 Oliver, Everett A., Richland
 Overholser, Milton D., Columbia
 Overholser, M. P., Harrisonville
 Owens, Michael J., Kansas City
 Paddock, Richard, St. Louis
 Parker, E. R., Kansas City
 *Parks, S. M., Bartlesville, Oklahoma
 Patterson, H. H., Braymer
 Patterson, W. R., Warrensburg
 Pearce, Herman E., Kansas City
 Peden, Joseph C., St. Louis
 Pipkin, Walter D., Monroe City
 Polsky, Morris, Kansas City
 Poor, C. Wm., Cassville
 Pope, Nathan K., Marshall
 Porter, Russell C., N. Kansas City
 Powell, R. B., St. Louis
 Printz, O. J., Kansas City
 Pulliam, M. J., St. Louis
 Putman, G. B., Marceline
 Raab, F. H., Kansas City
 Rainey, W. R., St. Louis
 Ravold, H. J., St. Joseph
 Reder, Francis, St. Louis
 Redman, Spence, Platte City
 Reed, C. H., Hardin
 Reid, Chas. T., Joplin
 Reser, T. S., Cole Camp
 *Rhoads, L. T., Lincoln, Ill.
 *Richardson, D. F., Chicago
 Roberts, Sam E., Kansas City
 Roberson, John H., Excelsior Springs
 Robichaux, E. B., Excelsior Springs
 Robichaux, E. C., Excelsior Springs
 Robinson, G. Wilse, Kansas City
 Robinson, G. Wilse, Jr., Kansas City
 Rose, D. K., St. Louis
 Roselle, T. A., Hannibal
 Rossen, J. A., St. Louis
 Rothwell, John, Liberty
 Roy, G. A., Kansas City
 Ruddell, G. W., St. Louis
 Rupe, J. F., Paradise
 Rutter, Caleb A., Kansas City
 Ryan, J. H., St. Joseph
 Ryland, C. T., Lexington
 Sale, O. A., Neosho
 *Schifferle, Edward, Creston, Iowa
 Schmidt, H. H., Marthasville
 Schneiderman, Henry, Kansas City
 Schofield, L. J., Warrensburg
 Schooley, R. C., Odessa
 Schumacher, N. R., Kearney
 Schutz, R. B., Kansas City
 Schwarz, Otto, St. Louis
 Sevier, R. E., Liberty
 Sexauer, A. E., Ste. Genevieve
 Sexton, D. L., St. Louis
 Sheley, O. C., Kansas City
 Shelton, E. C., Eldon
 Shelton, Prior, Kansas City
 Sherer, Jos. W., Kansas City
 Sherwin, Charles, St. Louis
 Shoemaker, Ferd., Excelsior Springs
 Shofstall, C. K., Kansas City
 Shouse, Edwin, Lawson
 Shryman, Ferdinand, Concordia
 Shutt, C. H., St. Louis
 Siddle, R. W., Columbia
 Simmons, Sterling P., Marshall
 *Simmons, S. P., Marshall
 Simpson, Morris B., Kansas City
 Singleton, J. M., Kansas City
 Skinner, E. H., Kansas City
 Skoog, A. L., Kansas City
 Smith, Clinton K., Kansas City
 Smith, C. Souter, Springfield
 Smith, Elsworth, St. Louis
 Smith, R. H., Rich Hill
 Smith, Wallis, Springfield
 Smith, Wm. A., Webster Groves
 *Smock, I. W., Kansas City
 Snider, Sam H., Kansas City
 Soule, S. D., St. Louis
 Spaulding, W. B., Plattsburg
 Spencer, Floyd H., St. Joseph
 Spinzig, E. W., St. Louis
 Stacy, W. T., St. Joseph
 Staley, H. R., N. Kansas City
 Stamey, J. T., St. Joseph
 Stauffacher, Charles G., Sedalia
 Steckman, Phillip M., Plattsburg
 Stevens, Roy U., Kansas City
 Stewart, John W., St. Louis
 Stewart, W. J., Columbia
 Stockwell, A. Lloyd, Kansas City
 Stone, W. E., Boonville
 Stowers, J. E., Kansas City
 Stratton, C. D., Rothville
 Stryker, G. V., St. Louis
 Stumberg, B. K., St. Charles
 Suddarth, C. H., Excelsior Springs
 Summers, C. B., Kansas City
 Summers, J. S., Jefferson City
 Tainter, Frank J., St. Louis
 Talbott, Hudson, St. Louis
 Tarson, S. S., Kansas City
 Tate, P. S., Farmington
 Tatum, H. E., Brunswick
 Teall, Raymond E., Kansas City
 *Tess, M. J. H., Koch
 Tesson, James A., Kansas City
 Thiele, George H., Kansas City
 Thompson, John W., Jr., St. Louis
 Thompson, R. L., St. Louis
 Thompson, Robert V., Jamesport
 *Tice, Galen M., Kansas City, Kansas
 Timberman, J. H., Chillicothe
 Titsworth, Guy, Sedalia
 Tooker, C. W., St. Louis
 Trader, C. B., Sedalia
 Trigg, Joseph F., St. Louis
 Trowbridge, Ellsworth H., Kansas City
 Underwood, Ross H., Kansas City
 Valentine, H. S., Kansas City
 Virden, C. E., Kansas City
 Vohs, Carl F., St. Louis
 Walker, G. S., Clinton
 Walter, Archie L., Sedalia
 Washburn, J. L., Kansas City
 *Wayne, R. D., St. Louis
 Weaver, J. B., Kansas City
 Welch, Albert S., Kansas City
 *Welch, L. D., Kansas City
 Welch, W. A., Callao
 *Welpton, H. G., Des Moines, Iowa
 Werner, August A., St. Louis
 Werner, Charles H., St. Joseph
 *West, A. T., St. Louis
 West, W. M., Monett
 White, Charles H., Kansas City
 White, E. C., Kansas City
 Whitsell, Ora E., St. Joseph
 Wilhelm, Francis E., Kansas City
 Wilson, L. A., Cameron
 Wilson, R. P. C., Marshall
 Wilson, R. R., Kansas City
 Wise, H. J., Sparta
 Wisser, J. D., St. Joseph
 *Wolff, C. H., Philadelphia, Pa.
 Wood, Lawrence E., Kansas City
 Wood, V. V., St. Louis
 Wood, W. S., Edgerton
 Woolsey, R. A., St. Louis
 Wright, J. B., Trenton
 Young, H. McClure, Columbia
 Young, J. S., St. Louis
 Zillmann, A. W., Keytesville
 Total, 515.

CAPE GIRARDEAU COUNTY MEDICAL SOCIETY

The Cape Girardeau County Medical Society met in the County Court House, Jackson, May 13, Dr. D. I. L. Seabaugh, Jackson, presiding.

The application of Dr. Albert M. Estes, having been approved by the board of censors, he was elected by ballot.

The board of censors approved the application of Dr. W. W. DaVault, Allenville, who was also elected to membership.

A communication from the Winthrop Chemical Company offering to send without cost to the Society a moving picture film entitled "Modern Methods of Anesthesia" to be exhibited at a meeting was read. It was moved by Dr. M. H. Shelby, Cape Girardeau, and seconded by Dr. D. H. Hope, Cape Girardeau, that the Society accept the offer and ask for the film on any one of our next three regular meeting dates. Motion carried. It was decided that all graduate nurses of our community should be extended an invitation to view this picture.

Dr. B. W. Hays, Jackson, reported on the State Association Meeting held last week. A committee composed of Dr. J. H. Cochran, Cape Girardeau, Dr. B. W. Hays, Jackson, and Dr. M. H. Shelby, Cape Girardeau, was appointed to investigate the possibility of bringing the State Association meeting to Cape Girardeau in 1937. The secretary of the Society was designated as an ex-officio member of the committee.

It was moved by Dr. O. L. Seabaugh, Cape Girardeau, and seconded by Dr. D. H. Hope, Cape Girardeau, that a cancer committee be appointed to work in conjunction with the Cancer Committee of the State Association. The motion carried and Drs. Glen J. Tygett, O. L. Seabaugh and M. H. Shelby, Cape Girardeau, were appointed to this committee.

Dr. D. H. Hope presented a paper entitled "Various Complications of Acute Appendicitis and Their Management."

Dr. Glen J. Tygett discussed "Management of Squint." Both subjects were ably presented and there was much interesting discussion.

Members present were Drs. D. I. L. Seabaugh, D. G. Siebert, G. W. Vinyard, B. W. Hays, Rusby Seabaugh, Jackson; Glen J. Tygett, H. V. Ashley, O. L. Seabaugh, M. H. Shelby, H. L. Cunningham, D. H. Hope and J. H. Cochran, Cape Girardeau.

J. H. COCHRAN, M.D., Secretary.
Per C. A. W. ZIMMERMANN.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society was called to order at 8:30 p. m., April 23, by Dr. J. L. Sims, Joplin, vice president, with twenty-three members and six visitors present. Dr. O. T. Blanke, Joplin, acted as secretary pro tem.

Dr. F. D. Dickson, Kansas City, presented a paper on "Low Back Pain," considering especially sacroiliac and lumbosacral conditions. He emphasized that oftentimes some congenital abnormality or other chronic pathology had existed without symptoms prior to acute injury, and that such backs are quite unlikely to become symptomless again without radical treatment. The paper was illustrated with lantern slides. Discussion was by Drs. A. M. Gregg, S. A. Grantham, Sr., J. W. Barson, M. O. Coombs, H. D. McGaughey, L. W. Baxter, Joplin; J. E. Douglass, Webb City, and H. H. Brookhart, Columbus, Kansas.

Meeting of April 30

The Society convened at the Connor Hotel at 8 p. m., April 30. In the absence of the president the meeting was opened by the vice president, Dr. J. L. Sims, Joplin, with twenty members and one guest, Dr. Wm. West, Monett, present.

Dr. A. B. Clark, Joplin, introduced Mr. Lawrence who spoke to the Society on a proposed city ordinance governing the activity of the restaurant trade in Joplin. The ordinance was discussed by Dr. O. T. Blanke, Joplin, and Dr. Clark, who is Commissioner of Health of Joplin. It was decided that as the ordinance governed the sale of food in drug stores it was not the proper thing for the medical society to pass on it at the present time without further study.

Dr. W. M. Kinney, Joplin, spoke on "X-ray Diagnosis of Silicosis" accompanied by lantern slides of proved cases of silicosis. Discussion was by Drs. S. A. Grantham, Sr., O. T. Blanke, J. W. Barson, S. A. Grantham, Jr., A. M. Gregg, and H. D. McGaughey, Joplin, and J. E. Douglass, Webb City. Discussion closed by Dr. Kinney.

Meeting of May 14

The Jasper County Medical Society met May 14 in connection with the Committee on Cancer of the State Association. The meeting was presided over by Dr. A. M. Gregg, Joplin, in charge of the cancer work in the district. The meeting was open to the public.

Dr. Ellis Fischel, St. Louis, spoke on "What One Should Know About Cancer."

Dr. Wm. H. Vogt, St. Louis, spoke on "Cancer of the Uterus," illustrated by lantern slides.

Meeting of May 28

The Jasper County Medical Society held a joint meeting with the Joplin Clinical Society.

The morning meeting consisted of hospital demonstrations of operative and medical cases followed by a luncheon at the Connor Hotel.

The afternoon program consisted of papers by the local members of the Joplin Clinical Society. A banquet was held at the Connor Hotel in the evening after which Dr. W. H. Olmsted, St. Louis, spoke on "Treatment of Diabetes."

This was the first meeting of the Joplin Clinical Society under this new organization and the meeting was an entire success. The out-of-town visitors numbered over a hundred.

Meeting of June 11

A special meeting of the Jasper County Medical Society was called at the Connor Hotel June 11 with the following present: Drs. S. A. Grantham, Jr., E. D. James, B. E. DeTar, H. D. McGaughey, C. T. Reid, Paul W. Walker, L. C. Chenoweth, W. H. Mallory, W. M. Kinney, J. W. Hardy, W. S. Loveland, C. W. Balsley, L. W. Baxter and A. B. Clark, Joplin, and O. L. Alberty, Carl Junction.

The purpose of this meeting was to find out who had sanctioned recent broadcasts over local radio broadcasting station WMBH in connection with the Gateway Creamery Company, Joplin. Dr. W. M. Kinney stated that on these broadcasts members of the Society had been speaking and after their talks the announcement was made that this group of health talks was sponsored by the Gateway Creamery Company in cooperation with the Jasper County Medical Society. He also stated that as nothing of this sort had ever been sanctioned by the Society he felt that it was an imposition on the Society by the Gateway Creamery Company, the broadcasting station and the members of the Society who had worked up the program. Dis-

cussion followed by Drs. S. A. Grantham, Jr., L. C. Chenoweth and H. D. McGaughey, Joplin.

Dr. S. A. Grantham, Jr., moved that a statement be issued to the sponsors of the program stating that the name of the Jasper County Medical Society should not be used in the future in this connection. Seconded. Discussion by Dr. C. M. Balsley, Dr. L. W. Baxter and Dr. W. M. Kinney. Motion carried.

A motion was made by Dr. W. M. Kinney that a committee be appointed to arrange a program of broadcast talks on medical subjects. An amendment to the above motion was made by Dr. C. M. Balsley that Dr. L. C. Chenoweth be made chairman of this committee. The motion as amended carried.

J. W. HARDY, M.D., Secretary.

SOUTH CENTRAL COUNTIES MEDICAL SOCIETY

The South Central Counties Medical Society met at West Plains, May 23, for dinner at the Arcade Hotel at 1 o'clock, with the following members and visitors present: Drs. D. D. Cox, Pomona; A. H. Thornburgh, J. W. Bingham, L. E. Toney and wife, and E. R. Keen, West Plains; J. F. Gullic, Koshkonong; F. A. Barnes and C. W. Cooper, Thayer; E. A. Beach, Elijah; H. A. Thompson, Lanton; A. C. Ames, Mountain Grove; H. B. Hull, Mammoth Spring, Arkansas; C. E. Rowe, Viola, Arkansas; W. W. Hatcher and wife, Imboden, Arkansas, and F. A. Gray, wife and niece, Batesville, Arkansas.

The speakers for the day were Dr. C. L. Randall, Kansas City, and Dr. Harold L. Gainey, Kansas City, Kansas. A public meeting was held at 2 o'clock at the Davis Theater with about fifty people present. Dr. Randall spoke on "The Nature and Frequency of Cancer" and Dr. Gainey spoke on "Early Signs of Cancer." Literature was distributed. After the public was dismissed Dr. Randall spoke to the physicians on "The Recognition and Treatment of Precancerous Lesions" and Dr. Gainey spoke on "Diagnosis and Treatment of Uterine Cancer." There was some discussion and some questions were asked and answered.

The president appointed the following board of censors to act on applications for membership: Dr. H. A. Thompson, Lanton (one year); Dr. F. A. Barnes, Thayer (two years), and Dr. P. D. Gum, West Plains (three years). They retired for a few minutes and brought in favorable reports on the applications of Dr. W. T. Little, Norwood; Dr. E. R. Keen, West Plains, and Dr. C. W. Cooper, Thayer, who were then elected to membership.

A vote of thanks and appreciation was extended to the speakers and to the proprietor of the theater where the meeting was held. Also it was voted to make a reasonable payment for the lighting although it was not asked.

The meeting adjourned to meet at Mountain Grove late in July.

A. C. AMES, M.D., Secretary.

James S. McLester, Birmingham, Ala. (Journal A. M. A., June 15, 1935), points out that man's place in future history will depend in no small degree on the food he eats. There is reason to believe that man can, by giving thought to the food he eats, influence the destiny of his race. The improvement of racial stock through diet, improvement in children of immigrants, results of hygiene and improved nutrition, influence of heredity and environment, the gospel of good food, importance of food habits, political and economic factors and the mastery through science are the subtopics discussed.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

14th Annual Meeting, Kansas City, 1936

President, Mrs. Rogers N. Herbert, Nashville, Tennessee.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

12th Annual Meeting, Columbia, 1936

President, Mrs. M. Pinson Neal, Columbia.

President-Elect, Mrs. W. C. G. Kirchner, St. Louis.
Adviser, Dr. J. F. Harrison, Mexico.

Registration for the eleventh annual session of the Woman's Auxiliary to the Missouri State Medical Association, began at the Snapp Hotel, Excelsior Springs, headquarters of the Auxiliary, May 7. The total registration was 125.

At 10:30 Tuesday morning the state president, Mrs. W. H. Goodson, Liberty, called to order the executive board which consists of all officers, directors, chairmen of standing committees, past state presidents and presidents of county auxiliaries. The nominating committee was completed and revisions of the constitution were postponed awaiting action on the national constitution at Atlantic City.

Luncheon at the Snapp Hotel followed this meeting. Mrs. David S. Long, Harrisonville, a former state president and present national chairman of public relations, presided. The distinguished guest at the luncheon was Mrs. C. R. Red, Houston, Texas, the first president of the Auxiliary and author of "The Medicine Man in Texas." Mrs. Red delighted her audience with a review of this book, reading excerpts which revealed the valuable and interesting character of this unusual story.

In the afternoon a tea was given at the home of Dr. and Mrs. J. F. Grace, Excelsior Springs. In the receiving line were Mrs. R. W. Tomlinson, Wilmington, Delaware; Mrs. C. R. Red, Houston, Texas; Mrs. A. B. McGlothlan, St. Joseph; Mrs. David S. Long, Harrisonville, and national and state officers. Mrs. J. H. Rothwell, Liberty, and Mrs. J. H. Clark, Excelsior Springs, poured tea and the daughters of Auxiliary members served in the dining room. Music was furnished by musicians from Kansas City, Excelsior Springs and Liberty.

In the evening Auxiliary members attended a meeting of the State Medical Association at the Elms Hotel where they listened to an address by Dr. R. G. Leland, Chicago, on "Medical Economics."

At the general session on Wednesday morning much interest was taken in the reports of the officers and county presidents. Mrs. M. Pinson Neal, Columbia, chairman of the essay contest, reported that 338 essays were written and announced the winners as follows: Senior high schools, first, Alfred J. Hoehn, St. Joseph; second, Stella Hoffman, St. Louis, and honorable mention, Swanalee Suites, Odessa. Junior high schools, first, Shirley Conkling, Liberty; second, Doris Rowin, Springfield, and honorable mention, Mary Lou Trough-tin, St. Joseph.

The following officers were elected: President-elect, Mrs. W. C. G. Kirchner, St. Louis; vice presidents, Mrs. C. H. Werner, St. Joseph; Mrs. W. H. Patterson, Warrensburg; Mrs. Paul Williams, Cape Girardeau, and Mrs. Herbert S. Valentine, Kansas City;

recording secretary, Mrs. J. Q. Cope, Lexington; treasurer, Mrs. Paul F. Cole, Springfield; auditor, Mrs. Frank L. Davis, St. Louis.

This meeting was followed by a luncheon at the Excelsior Springs Country Club. Mrs. Robert W. Tomlinson, Wilmington, Delaware, president of the National Auxiliary, gave a most timely address. Mrs. C. R. Red, Houston, Texas, read a "scientific paper" called "Ama Casa Mania." The State and National Medical Associations lent of their members whom the Auxiliary was delighted to honor. Most gracious words of deeply appreciated advice and commendation were given by Dr. C. T. Ryland, Lexington; Dr. E. Lee Miller, Kansas City; Dr. W. H. Goodson, Liberty; Dr. M. Pinson Neal, Columbia, and Dr. R. G. Leland, Chicago. It was a matter of regret that Dr. J. F. Harrison, adviser to the Auxiliary, and Dr. E. J. Goodwin, St. Louis, were unable to be present. At this luncheon the new president, Mrs. M. Pinson Neal, Columbia, and the other officers were installed. Mrs. Neal presided over the postconvention board meeting which followed. A drive ending at the Veterans' Hospital and a tea concluded the afternoon session.

At a dinner in the evening Dr. W. W. Bauer, Chicago, spoke on "Centuries of Progress in Medicine." The dramatic fraternity of William Jewell College, Liberty, presented a one-act play, "Good Medicine."

BOOK REVIEWS

A SYNOPSIS OF SURGERY. By Ernest W. Hey Groves, M.S., M.D., B.Sc. (Lond.), F.R.C.S. (Eng.), Consulting Surgeon to the Bristol General Hospital; Emeritus Professor of Surgery, Bristol University, etc. Tenth edition. New York: Wm. Wood and Company. Price \$5.00.

The tenth edition of the Synopsis of Surgery by Groves is a compend that follows the Cook County outline form of writing.

It is brought up to date in this edition by adding new subjects and revising the old. This volume has always sold well to students. No casual instructor can afford to be without it. J. G. M.

OBSTETRIC MEDICINE. The Diagnosis and Management of the Commoner Diseases in Relation to Pregnancy. Edited by Fred L. Adair, M.A., M.D., F.A.C.S., and Edward J. Stieglitz, M.S., M.D., F.A.C.P. Illustrated. Philadelphia: Lea & Febiger. 1934. Price \$8.00.

A review of this most interesting book leaves one with the impression that much valuable material has been collected within its covers which should be of interest to every one who has a desire to appreciate fully the relationship between general obstetrics and the allied specialties. One must, however, take exception to the voluminous amount of material which could profitably be omitted. The book is like a good play before it has been cut. It needs pruning badly.

The chapters on tuberculosis and heart disease are very instructive and give just that amount of valuable information so necessary for a quick survey of the subject by a busy practitioner. To my mind the spirit of the book has been best caught by the author of the chapter on syphilis; his illuminating and sane discussion of this subject without the ever wearying amount of detail is both delightful and reassuring.

Another very instructive discussion of a pertinent subject is found in the chapter on deficiency diseases. So much nonsense has been spread to the layman and the medical profession in the advertising matter on this

subject that it is refreshing to find a straightforward account of what we do and do not know about these perplexing problems and their relation to obstetrics. The suggestions for stimulating investigation contained in its text should fall on fertile ground somewhere.

In a discussion of dental caries the author gives a rather discouraging account of what is not known on this subject; but, again, he points out the futility of blindly adhering to suggestive advertising in the belief that the magic wand for the eradication of this destructive disease can be so easily waved.

The limits of space prevent a discussion of more of the extremely interesting articles. The book is one intended primarily for the advanced student or practitioner, therefore this reviewer must again stress the point that much material is included which could either be entirely omitted or a short reference made to other sources of information where the subject to be studied finds a more suitable place. E. F. S.

A NEW PHYSIOLOGICAL PSYCHOLOGY. By W. Burrige, D.M., M.A., Professor of Physiology, Lucknow University. With a foreword by Sir Leonard Hill, M.B., LL.D., F.R.S. London: Edward Arnold & Co. 1933. Price \$3.00.

In his "New Physiological Psychology" Burrige considers the nervous system a colloidal system having two sources of energy due to adsorption reactions and changes of colloidal aggregation. He terms these energy factors kinesiphores, capable of infinite variations, excitation resulting from interaction between the two. The data of sensation or ideas are mediated by the first; consciousness by the second source of energy.

Considerable discussion is devoted to the differences between the stimulation of a rhythmic organ and excitation of a nerve muscle preparation. There are many references to experimental work on cardiac muscle, reported previously by Professor Burrige and used as a basis for his assumption that "central neurones and end-organs are rhythmically active structures," the rate of rhythm affording the explanation for various emotional responses.

Since the hypothesis elaborated in this volume is almost entirely the product of the author the bibliography is confined in most instances to his own publications.

The new theories of the synapse may fit into his scheme; for the most part it would seem that experimental evidence must precede acceptance of these so-called "new doctrines."

The application of his principles are based upon the Freudian explanation of abnormal psychology and might be of interest to those who subscribe to the psychoanalytic system of therapeutics. V. B. J.

MANUAL OF THE DISEASES OF THE EYE. By Charles H. May, M.D., Consulting Ophthalmologist to the Mt. Sinai Hospital, to Bellevue Hospital, to the French Hospital, New York, and to the Monmouth Memorial Hospital, etc. Fourteenth edition revised. With 376 original illustrations including 25 plates, with 78 colored figures. Baltimore: William Wood and Company. 1934. Price \$4.00.

My first acquaintance with May's "Diseases of the Eye" was with the third edition in 1904. I have bought each succeeding edition and now the 14th edition in August, 1934, is at hand. The original purpose and form of this valuable book has not been altered and it is still the best single volume for the student of medicine as well as the man in general practice. Each succeeding edition has been well edited and has been brought abreast of the established advances made in ophthalmology. Special attention is directed to the

section on therapy of retinal detachment, and to the change in the section on anatomy as well as the chapter dealing with muscles. Statements are clear and definite as well as being accepted forms of treatment. It is a most valuable book to the practitioner of medicine.

A. W. M., Jr.

MEDICO-MILITARY SYMPOSIUM. Under the auspices of the Kansas City Southwest Clinical Society and the Medical Department, Seventh Corps Area, U. S. Army. General Hospital, Kansas City, Missouri. Kansas City, Brown-White Printers and Publishers. 1934.

This small volume containing abstracts of symposium papers is a very useful method to disseminate the work and ideas of this group of medical men. All subjects seemed important to the reviewer and a concise volume of information about them was obtained. Particularly interesting were the statements on subacute bacterial endocarditis, rheumatic heart disease, disease of the coronary arteries, agranulocytic angina, rabies, and rheumatoid arthritis, and special appreciation goes to the men who contributed data regarding gastrointestinal and chest diseases for use by the general practitioner. If each year this is published and the author of each abstract acquires and includes the latest ideas and thoughts on each subject, it will prove a widespread and accurate method of obtaining new facts about medicine.

W. G. B.

SURGERY OF A GENERAL PRACTICE. By Arthur E. Hertzler, M.D., Chief Surgeon, Halstead Hospital; Professor of Surgery, University of Kansas, and Victor E. Chesky, M.D., Chief Resident Surgeon, Halstead Hospital. With 142 illustrations. St. Louis. The C. V. Mosby Company. 1934. Price \$10.00.

As stated in the preface, the basis of this book is the last edition of "Minor Surgery" which appeared in 1930. The book has been thoroughly revised and a number of operations and many illustrations have been added.

The subject of "Minor Surgery" is so completely covered that the book instantly becomes of great value to the student, the general practitioner and the surgeon. The many illustrations add greatly to the value and interest of this book, and it can be highly recommended both for a practical and reference work.

E. V. M.

A COMPEND OF DISEASES OF THE SKIN. By Jay Frank Schamberg, A.B., M.D., Professor of Dermatology and Syphilology Graduate School of Medicine, University of Pennsylvania, etc., and Carroll S. Wright, B.S., M.D., Professor of Dermatology and Syphilology Temple University School of Medicine, etc. Ninth edition, revised and enlarged with 129 illustrations. Philadelphia: P. Blakiston's Son & Co., Inc. 1934. Price \$2.00.

This brief statement of the essentials of dermatology is in its ninth edition since its creation in 1900. Within the compass of 320 pages and 129 illustrations it compresses a large amount of dermatologic knowledge. Claiming simply to be a compend, it successfully mentions and outlines all the common skin diseases and many of the rarer entities with indications of their treatment.

Since the authors have purposely limited themselves to small space it is hardly fair to criticize the volume for abridgment alone. One might justifiably remark, however, that in nine editions and thirty-four years more representative illustrations in place of diagrams might have been collected. Epithelioma is almost too

briefly dismissed and space devoted to its treatment with escharotics might more usefully have been employed. A picric acid formula for application upon burns is hardly praiseworthy nowadays. The exposition of dermatitis venenata is wholly inadequate with no hint of its interrelationship with eczema. The devotion of nine pages to tuberculosis of the skin is generous in view of the relative rarity of the condition in this country and the brevity of more important discussions.

It is easy to find fault; one's tendency is to look for them first. However, it would be a real challenge to attempt an equally successful condensation. The medical student or practitioner will find it a reliable and convenient source of information.

R. L. S., Jr.

DEFINITE DIAGNOSIS IN GENERAL PRACTICE. By W. L. Kitchens, M.D. With a foreword by John H. Musser, B.S., M.D., F.A.C.P., Professor of Medicine in The Tulane University of Louisiana School of Medicine. Philadelphia and London: W. B. Saunders Company. 1934. Price \$10.00.

There are 958 pages in this book but on a number of the pages there are only a few words. There is no description of any disease. A list of 509 symptoms is given in the first part of the book and these refer by page number to 406 diseases listed in the second part. Most books of any value either contain a little information on some subject or are thought stimulating. In the opinion of this reviewer, the contents of this book hardly justify the rather imposing title, "Definite Diagnosis."

P. T. B.

SYNOPSIS OF GENITOURINARY DISEASES. By Austin I. Dodson, M.D., F.A.C.S., Richmond, Virginia, Professor of Genitourinary Surgery, Medical College of Virginia, etc. With 111 illustrations. St. Louis: The C. V. Mosby Company. 1934. Price \$3.00.

Primarily, I desire to compliment the almost perfect spelling and punctuation appearing throughout this book. The subject is covered in a pleasing, impressive and compact manner. Especial attention is given to cardinal symptoms as well as to the outstanding points leading to a reliable differentiation. This small text would particularly appeal to senior medical students, interns and general practitioners. I am of the opinion that this book, if properly brought to the attention of the medical profession and advanced students of medicine, would find ready sale. I was impressed with the chapter on prostatism and consider it the best written subject in the text. In the chapter on tumors of the testicle a discussion on the merits of the Zondek-Aschheim test of the urine for prolan A in suspected malignancies of the organ (teratomas) would have been interesting. The etiological factors entering into the formation of calculi in the urinary tract was well presented. The causes of prolonged gonorrheal urethritis as detailed is a very important aid to the general practitioner, who at this time is attempting to handle his own gonorrheal problems, and tuberculosis of the genito-urinary tract is thoroughly presented. In the treatment of infections of the epididymis as well as in prostatovesiculitis, some mention should have been made of the intravenous use of neosalvarsan, sodium iodide, 1-200 and 1-500 hydrochloric acid, metaphen and intramuscular use of aolin, lactigen proteolac.

Diagrams showing all sources of blood in and out of the genito-urinary tract are quite complete. Renal infections are particularly well discussed. This text is a valuable contribution to the medical profession and a copy should be placed in all medical libraries.

L. A. M.

PHYSIOLOGY IN HEALTH AND DISEASE. By Carl J. Wiggers, M.D., Professor of Physiology in the School of Medicine of Western Reserve University, Cleveland, Ohio. Illustrated with 182 engravings. Philadelphia: Lea & Febiger.

This book more than fulfills the requirements as set forth by the author in the preface. It is most comprehensive in scope yet concentrated in form the author freely expressing the opinions of other recognized authorities. The book is written in a beautiful style and in a vein that makes it easy to follow. The handling of difficult subjects such as the bioelectric phenomena, the dynamics of valvular diseases, the physical aspects of electrocardiography and its interpretation, clearly demonstrates that the author is well versed in the subject matter. Every system of the body is covered in such a graphic manner that interpretations are very simple.

The reviewer recommends this excellent book to every one who is interested in the science of medicine. No bookshelf is complete without this latest contribution.

A. C. C.

MEDICAL CLINICS OF NORTH AMERICA. Issued serially, one number every other month. Volume 18, Number 3. New York Number—November, 1934. Octavo of 301 pages with seventeen illustrations. Per clinic year July, 1934 to May, 1935. Philadelphia and London: W. B. Saunders Company. 1934. Price \$16.00.

With this New York number these well-known clinics have inaugurated a radical change in editorial policy. Their aim now is to feature the everyday "run-of-the-practice" problems of the general practitioner. Emphasis is placed on the diagnosis and treatment of common disorders encountered daily in the office, with detailed expositions of definite clinical conditions rather than general discussions. The volume at hand presents sixteen excellent and pithy short monographs on such topics as menstrual disorders, migraine, erysipelas, mucous colitis and the sedimentation test. All are contributed by eminent authorities among whom Walter Bastedo, Ernst P. Boas and Douglas Symmers are most widely known. Every article is replete with practical counsel and sound advice.

C. D. H.

DISEASES OF THE SKIN. By Richard L. Sutton, M.D., Sc.D., LL.D., F.R.S. (Edin.), Professor of Dermatology, University of Kansas, School of Medicine, and Richard L. Sutton, Jr., A.M., M.D., L.R.C.P. (Edin.), Assistant in Dermatology, University of Kansas, School of Medicine. With 1310 illustrations and eleven colored plates. Ninth edition revised and enlarged. St. Louis: The C. V. Mosby Company. 1935. Price \$12.50.

The Sutton textbook now in its ninth edition has much to commend it to the medical profession. Sutton has added his son as a coauthor and much of the newer pathological material is the result of the latter's studies.

The work is larger than ever with many new photographs and additional diseases described. The chapters on eczema, psoriasis and cancer of the skin are well illustrated and the text exceedingly useful to the student as well as to the physician.

Every chapter illustrates the extensive experience and dynamic personality of the senior author who deserves a great deal of praise for producing this combined atlas and text of dermatological medicine.

N. T.

THE 1934 YEAR BOOK OF GENERAL SURGERY. Edited by Evarts A. Graham, A.B., M.D., Professor of Surgery, Washington University School of Medicine; Surgeon-in-Chief of the Barnes Hospital and of the Children's Hospital, St. Louis. Chicago: The Year Book Publishers, Inc. 1934.

Continuing in the format and arrangement of previous years this new book of surgery comprises a voluminous summary of recent surgical literature.

No fault can be found with the selection of material, but occasionally there is confusion in distinguishing the editor's view and the view of the author summarized, and in a few instances the proof reader erred.

To this reviewer the editorial comment is the best part of the book; may there be more comment in future years.

The book is recommended as an inexpensive guide to recent developments in surgery.

B. S. P.

SYSTEM OF DIET WRITING. Including: Diet Calculator; Obesity Chart; diet formulary, and 100 Menu Prescription Forms. By William S. Collens, B.S., M.D., Brooklyn, N. Y., Chief of Diabetic Clinic, Israel Zion Hospital, et al. New York City: Form Publishing Company. 1934.

For the physician skilled in the preparation of special diets this book might serve as a useful short cut; for the physician who wishes to learn practical dietetics this little volume would seem unsuitable. There is no royal short cut to the writing of diet prescriptions; the subject must be learned in all its branches and skill acquired by experience. There are numerous minor inaccuracies found in the tables; for example, cranberries are not listed among the acid ash producing foods and corn would seem to be included in those producing alkaline ash. It is surprising to find in a volume published so recently blanket recommendation for a low calcium diet in lead poisoning. Possibly, too, the fact that a book copyrighted in 1933 is not sent out for review until 1935 is of some significance.

B. Y. G.

HOW TO PRACTICE MEDICINE. By Henry W. Kemp, M.D., New York. New York: Paul B. Hoeber. 1935. Price \$2.50.

As the preface states, this book is primarily intended for those who are entering the practice of medicine. The author is trying to guide the neophyte from the day he graduates well up into the period where he has developed a fairly lucrative practice and hopes to leave him with a few precepts by which to conduct his entire life, professional and otherwise.

The eighteen chapters which make up this light and readable volume are divided somewhat as follows. The first four chapters deal in great detail with the procedures leading up to the actual opening of the office. Suggestions are made as to the choice of location, equipment, furniture, the type of literature suitable for the waiting room, what to keep on the desk, and even where to put the electric fan. In discussing such matters as the choice of office help, the relation with your druggist, and your medical colleagues, he is stressing the "professional dignity"; he is very specific about personal appearance; "If you feel that you wish to wear a mustache, wear a real one," he says. Chapters five to eight discuss the relation with and handling of patients; how to talk to them, how to examine them; and regarding house calls he says, "don't drive fast," and "don't take your sweetheart along." Chapters eleven, fourteen and fifteen cover more specifically the

handling of women and children ("God's gift to the physician"), and of confinement cases. In chapters eight, nine and ten the author advises as to the policies to be followed in regard to professional colleagues, religion, politics and social activities, and the choice of nurses; "don't attend your patients' funerals," and "stay out of politics," he advises.

Chapter twelve covers some facts concerning the patients' marital problems, for which so often the doctor is consulted, while chapter thirteen gives some elementary advice on prescription writing and what to do with the avalanche of samples brought in by the detail men. Chapter sixteen is a miscellaneous gathering of "do's" and "don'ts": the author finds it good business to carry malpractice and liability insurance, to pay cash for everything and not to buy "stocks and bonds!" Chapter seventeen deals with some of the problems confronting us in handling senile patients, and finally with the choice of the right kind of wife. Don't marry a jealous woman, he says, but if you have already, "get rid of her, before she gets rid of you and your practice."

Although at times too detailed and too elementary the book is entertaining, to say the least, and gives the author's opinion on practically everything regarding the private and professional life of a doctor. It should be food for thought to any young intern. S. J. C.

INTERNAL DERANGEMENTS OF THE KNEE-JOINT. Their Pathology and Treatment by Modern Methods. By A. G. Timbrell Fisher, M.C., M.B., Ch.B., F.R.C.S. (Eng.), surgeon (with charge of out-patients), Seamen's (Dreadnought) Hospital, Greenwich. Second edition. With 120 illustrations contained in sixty plates (2 coloured) and the text. New York: The Macmillan Company. 1933. Price \$4.00.

Dr. Fisher begins this excellent little volume with a well outlined historical sketch of internal derangements of the knee joint. Then follows a most complete chapter on the anatomy of the interior of the knee joint. This is well illustrated by numerous diagrams and drawings.

The pathology of the semilunar cartilages is treated fully, and all types of injury and disease of the cartilages are illustrated and clearly described. Symptomatology and differential diagnosis of internal derangements of the knee joint are given and lucidly described.

Considerable space is given to the treatment of internal derangements of the knee joint. The treatment is divided into mechanical, manipulative and operative. Indications for each type are outlined.

The question of chronic arthritis with symptoms of internal derangement of the knee joint is considered very fully but the author fails to mention the role of static conditions of the feet as a factor in the production of traumatic arthritis with symptoms of internal derangement of the knee.

This comprehensive book is highly recommended to those doing traumatic surgery and especially to those engaged in the practice of orthopedic surgery.

R. E. M.

THE HEART VISIBLE. A Clinical Study in Cardiovascular Roentgenology in Health and Disease. By J. Polevski, M.D., Attending Physician and Cardiologist, Newark Beth Israel Hospital. Philadelphia: F. A. Davis Company. 1934. Price \$5.00.

In Parts I, II and III the author emphasizes the fact that the normal heart and aorta are influenced in their position, size and configuration by many extraneous factors, such as type of individual, age, etc., all of which it is necessary to consider before attaching an abnormal significance to the findings. He advises not

only the A-P but the oblique and lateral views. These are of great assistance in special situations where it is desirable to detect auricular enlargement, aortic changes and the A-P diameter of the heart. His clinical choice of cardiac measurement is the greatest transverse diameter in the orthodiagram and he gives Claytor and Merrill's averages in weight groups. On looking at a film it is common practice to estimate this ratio visually but active measurement should be made, for it has been this reviewer's experience that it is easy otherwise to make a mistake, especially when there is a wide shadow mostly to the left of the midline. In Part IV he considers the abnormal heart with respect to its deviation from normal in size and configuration generally and then particularly in valvular diseases, congenital lesions, etc. The aortic and mitral types of hearts are described but a warning is given not to diagnose aortic or mitral disease on this basis. The heart as found in mitral lesions he describes, and brings out that axial rotation from right ventricular and conus enlargement changes the silhouette. It is well to recall that this same rotation takes place in ptotic hearts in hyposthenis individuals on whom it is very undesirable to place a diagnosis of heart disease. Part V is given over to the diseases of the pericardium and we are reminded that the roentgen ray cannot always distinguish an effusion from a greatly dilated heart. Part VI is devoted to the normal and pathological aorta, aneurysms and the pulmonary artery. In this he points out that the supracardiac "aortic area" is no indicator of the aorta's true width but that the real lumen size can be measured sometimes in the oblique views. As in the case of the heart, he recalls various extraneous factors which produce changes in the aorta, such as a short thorax, high diaphragm, pressure from above and an elongated aorta.

The reader is told on page 10 that the roentgenologist and clinician should cooperate in a situation where a small, rotated ptotic heart might be confused with a mitral stenosis. Again on page 64 in speaking of deviations from the normal size it is suggested that the roentgen ray examiner should secure all clinical data, "and if possible the clinical diagnosis of the cardiac lesion" and from all of this there is derived a clue for an occasional puzzling feature in his roentgen ray work. He then can prove or disprove the clinical findings. On page 106 in speaking about pulmonary insufficiency he suggests the roentgenologist cooperate with the clinician. On page 142 in speaking of retrocardiac adhesions the author suggests consultation with the clinician on the subject of the pathologic aorta and it is suggested the roentgen ray examiner avail himself of other clinical and laboratory aids for this is "of tremendous aid even if some of the evidence is indirect." On page 163 it is also suggested that before making an etiological diagnosis he should fortify himself with clinical and laboratory findings.

As one views these assembled quotations together it is hard to escape a growing conviction that the author is putting the cart before the horse. A reading of his preface rather confirms this for it reveals that the roentgen ray is the central point around which all other facts should revolve. Usually the roentgen ray examination is considered an aid, sometimes important and sometimes unimportant in the making of a diagnosis. With all of the facts before him the clinician who accepts the responsibility of prognosis and treatment makes his cardiac diagnosis.

The author has given us an excellent book in which the reproductions of selected cases on heavy glossy paper are especially to be commended. These are accompanied by illustrative diagrams which are helpful and well described. L. S. L.

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ADVANCES IN RENAL SURGERY WITH PARTICULAR REFERENCE TO NEPHROPEXY

OSWALD SWINNEY LOWSLEY, M.D.

NEW YORK

Experiences with ribbon gut in renal surgery during the last two years has convinced the author that the introduction of this material has already proved to be a real contribution to conservative surgery of the kidney.

Experiments on animals and borne out by clinical observation have shown that life can be maintained by one eighth of the renal tissue with which the animal or person begins life. Nevertheless, it behooves all surgeons to conserve as much kidney tissue as possible in every operation upon this important structure.

Our previous writings have called attention to ribbon gut* being an animal tissue as thin as tissue paper, flat, 1.8 cm. in width, packed in alcohol in the usual type of aseptic catgut tube. When it is to be used it is removed from the tube and moistened with sterile water or saline solution. It is thoroughly pliable and sufficiently strong for any purpose of a surgical nature. The width of the material is no handicap in tying satisfactory knots, as it twists over a distance of only about one centimeter.

Nephrostomy.—Rabbits were operated upon and discarded after using sixteen animals as their kidneys were too small for practical purposes. Dogs' kidneys were entirely satisfactory and after a series of six-

teen operations had been performed the first nephrostomy using the ribbon gut technic was performed at the New York Hospital before the Genito-Urinary Section of the Academy of Medicine, on February 15, 1933. Since that time the technic has been improved upon by the use of a flat needle for placing the material around the kidney. This method was suggested by Dr. A. L. Sellenings of New York and has proved to be rapid and efficient.

This method of repairing the kidney has become routine and has not failed in a single instance. It is equally effective in approximating the cut edges of the renal tissue after the performance of an heminephrectomy. A small pad of fat is buttered on the cut surfaces after the very efficient method proposed by Koll of Chicago in 1917. It is our experience that bits of muscle applied to a bleeding point are not nearly so effective in aiding hemostasis because fat will bring this about in one tenth the amount of time required by the muscle when applied in an identical manner.

Rupture of the kidney may be repaired by the use of ribbon gut with excellent success, as shown by our experiments on dog's kidneys. In most cases of rupture, the renal capsule remains intact unless the injury is caused by a sharp instrument or edge, such as the edge of a solid tired automobile wheel.

Our experience has taught us that a case of renal injury should be explored if there is hematuria lasting longer than twenty-four hours. The reason for the exploration is that injury to the kidney usually results in rents or tears of the cortical substance of the organ without injury to the fibrous capsule. Blood clots form throughout the ruptured portions, urine and ferments are released resulting in digestion and necrosis of the renal substance with a tremendous loss of secretory efficiency and often, as in one of our cases, with the loss of the entire organ and great danger to the life of the patient.

*From the Department of Urology, (James Buchanan Brady Foundation) of the New York Hospital.

Read at the 78th Annual Meeting of the Missouri State Medical Association, Excelsior Springs, May 6-9, 1935.

*The use of this material was suggested by Mr. W. P. Didusch, the well known medical artist. It was developed by Dr. Ralph O. Clock. The animal experiments were conducted in the department of experimental surgery at the New York Hospital with the splendid cooperation of Professors George Heuer and Joshua Sweet, to whom the author is most grateful, as well as to Doctors Mohrman, James, Snyder, Adams, Barrett and Bray, who have assisted with the operations upon the animals and in their care.

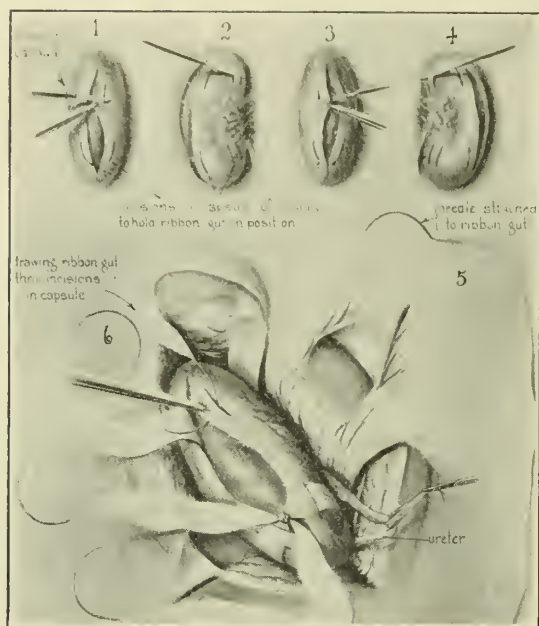


Fig. 1. Nephropexy with ribbon gut. 1, 2, 3, 4, incising capsule of kidney to hold ribbon gut in place. 5 ribbon gut studded with needles. 6 placing ribbon gut around kidney.

On the other hand, if the kidney is explored, the fibrous capsule opened, blood clots removed, bleeding points stopped by the application of bits of fat and the proper pressure exerted by ribbon gut skillfully applied, a tube drain being fixed in the pelvis of the kidney, it is found that there will be very little destruction of renal tissue and no danger to life. This point was definitely proved by our experimental animals and by the clinical observation of human cases as well.

Nephropexy.—Nephropexy by the ribbon gut method has been made practical by the development of twenty-one day chromicized ribbon gut studded with an atraumatic needle at one end.*

In the experiments performed on dogs as a preliminary to the use of this material on the human twelve animals were used in the series. The operation performed was as follows:

The dog is prepared by being shaved over a sufficient area in the region of the costo-vertebral angle. Under ether anesthesia an incision about 6 cm. in length is made extending downward and toward the midline from the costovertebral angle. The muscular wall is split in the usual manner and the kidney approached extraperitoneally. By careful manipulation the dog's kidney may

be freed from the peritoneum, which covers three fourths of its circumference. In those cases in which a tear was made in the peritoneum it was immediately repaired with plain catgut. The kidney is delivered, fibrous capsule incised and stripped back exposing about one fifth of the cortical surface. Chromic ribbon gut is then tied around both the lower and upper poles of the kidney, being fixed in position by appropriate straps through the fibrous capsule. The two loose ends are tied together so that the kidney is held in a basket of ribbon gut. The upper needle-studded ribbon gut is then passed over the lowest rib and tied to one of the loose ends and the other one fixed at an appropriate position in the quadratus lumborum muscle. Care is taken to apply the exposed renal cortex to the surrounding structures to aid in adhesion and also to put the ureter on a gentle stretch to assure proper drainage. The muscular layer is closed by plain catgut sutures as is the fascia, but the skin is approximated by subcutaneous silk suture.

The results of the animal experiments were so striking that nephropexies were performed upon human beings with very slight modification of the technic:

Technic Employed.—Spinal or paravertebral novocaine produces proper anesthesia for this procedure. The patient is fixed on the table in the desired position with loin straight up and put on the stretch by means of an elevator or sand bags. The upper leg is held straight out, the lower flexed. The

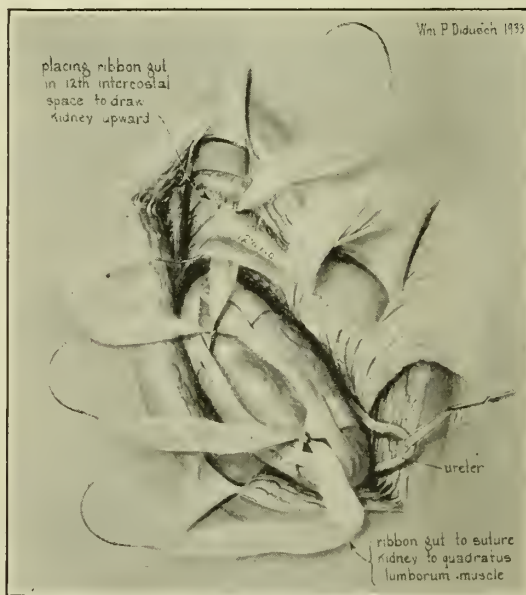


Fig. 2. Nephropexy with ribbon gut. Drawing ribbon gut through intercostal space.

*The author is most grateful to Davis and Geck, manufacturers, who furnished the author with the materials used in these experiments.

hands and elbows are held together and the patient held firmly in position by means of a broad long strip of adhesive plaster attached to the table on both sides.

An incision is made about 2 cm. below the costal margin extending from the costovertebral angle downward and mesially for about 16 cm. This is deepened through the fascia of the erector spinal muscles, as well as the abdominal fascia, and the costovertebral ligament is incised. This allows the twelfth rib to swing up and gives more operative space. The incision is continued through the muscular wall, care being taken to preserve the ilio-inguinal and iliohypogastric nerves as well as the lower fibers of the twelfth costal.

The fatty capsule is opened, the kidney mobilized, aberrant vessels ligated and the organ delivered. The fibrous capsule is divided in the midline and stripped back exposing about one sixth of the renal surface. The needle-studded chromic ribbon gut is then fixed about both the upper and lower poles of the organ by means of the author's flat needle, a sufficient number of straps being applied to keep it in proper position. This is also accomplished by tying the free ends together. The needle of the upper piece is then inserted above the twelfth rib and tied sufficiently tight to elevate the kidney to the desired position the ureter being on a slight stretch and the uncovered cortex of the kidney in approximation with the quadratus lumborum muscle into which the lower ribbon gut is fixed by its needle and tied. The wound is then closed in layers in the usual manner without drainage.

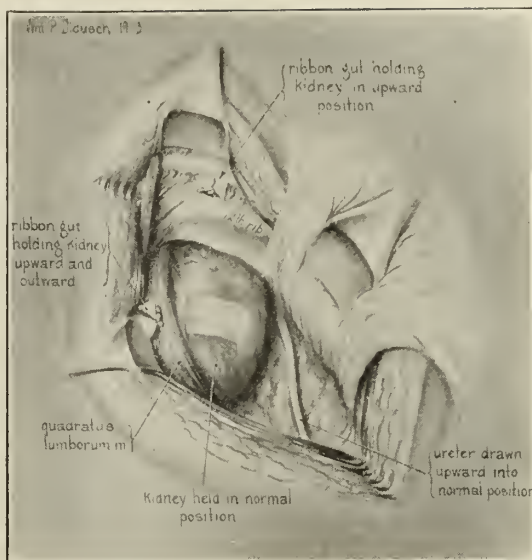


Fig. 4. Nephropexy with ribbon gut completed. Kidney is drawn upward and outward, ureter free and straight.

The cases operated upon by this method have all done well. There have been no deaths in the series so it is impossible to tell anything about the condition of the kidney in the human. The dogs' kidneys examined, however, have all shown excellent results and we have every reason to believe that there has been no damage to the kidneys of the human cases operated upon. The pyelograms indicate that the kidneys elevated by the above method have all stayed in place and every patient has been relieved of the symptoms complained of. The history of a typical case follows:

REPORT OF CASE

Case 1. Miss M. McC. Previous admission August 18, 1926, to November 1, 1926. Diagnosis, angina pectoris; complications, none; operation, none; results improved. Readmitted February 28, 1933, to April 5, 1933. Diagnosis, nephroptosis (right); operation, cystoscopy (several times); results, improved. Readmitted November 20, 1934, to November 28, 1934. Diagnosis, right nephroptosis; chronic right pyelitis; operation, cystoscopy; results, improved.

Interval Note.—Since discharge three weeks ago patient has had several attacks of severe pain in the right loin relieved by cystoscopy. There has been a more or less constant dull pain at all times. No chills or fever. In as much as conservative treatment has not been of avail she is admitted at this time for nephropexy. The patient has been examined through the cystoscope about twenty to twenty-five times. She has been in good health otherwise and has no complaints.

Physical Examination.—Aged 48; height, 5 feet, 3 inches; weight 138 pounds. Eyes, pupils equal, react to light and accommodation. Throat slightly injected, partial upper plate. Excoriation left nostril. Tongue coated. Lungs clear, breath sounds normal. Percus-

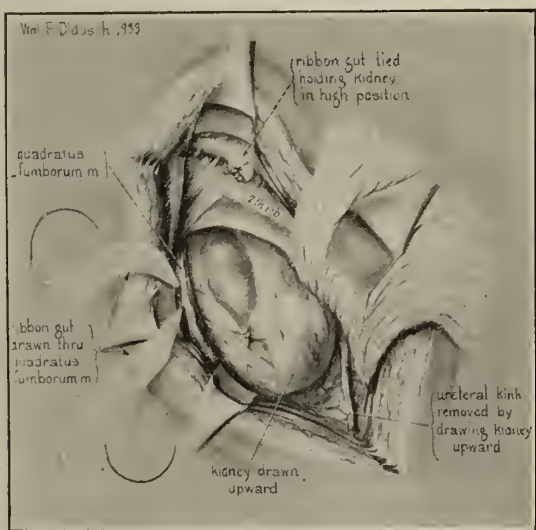


Fig. 3. Drawing ribbon gut through quadratus lumborum and ribbon gut tied above the twelfth rib.

sion normal. Heart, slow regular normal sounds, no murmurs. Obese, appendectomy scar, acutely tender right flank and right lower quadrant anteriorly; so much so that deep palpation was impossible. Reflexes deep and superficial.

Impression.—Right nephroptosis; bilateral pyelitis.

Operation.—Nephropexy right, December 21, 1934, under spinal anesthesia. Usual merthiolate skin preparation. Patient lying on left side, right kidney elevated by bar. The usual curved incision below the twelfth rib through skin and muscles exposing the perirenal fascia. Care was taken to preserve the nerves. The perirenal fascia was opened and the kidney separated. There were several fine adhesions. One aberrant vessel at the lower pole running along and across to the ureter was cut and ligated. Ribbon tape was passed through loops in the capsule and tied about the upper and lower poles. The ends were tied together forming a basket. The muscle over the twelfth rib was pushed back and the tape was passed through above the twelfth rib pulling the kidney up in position. The ureter was then examined and found to be straight. The lower pole of the kidney was seen to be slightly cyanotic but this was not caused by pressure of the tape. Wound closed in layers using plain catgut. Skin closed with continuous sutures of dermol and with three silkworm tension sutures. Patient returned to her room in good condition.

Postoperative Notes.—December 21, 1934, right nephropexy; kidney suspended with ribbon gut; ureter straightened. An aberrant vessel crossed the ureter and resulted in congestion of the lower pole when divided. Closed in layers with catgut with drainage. Returned in fair condition.

December 22, first postoperative day. Condition good. Considerable pain in wound. Voiding frequently; no blood; moderate gas; pulse good.

December 27, sixth postoperative day. Wound clean. Continuous dermal skin suture removed with some difficulty. Voiding well. No complaints. Her condition satisfactory.

December 30, ninth postoperative day. Stay sutures removed. Wound clean, healing per primum. No complaints. Temperature, pulse and respiration normal.

January 3, 1935, thirteenth postoperative day. Wound clean and healed. Temperature, pulse and respiration normal. No complaints. No pain. Progress satisfactory.

January 7, seventeenth postoperative day. Wound healed. No urinary symptoms. General condition good. Back rest elevated 45 degrees. Not to be up for three weeks.

Uroselectan.—Reexamination shows both kidneys to be of normal size, shape and position. Following intravenous urography, the excretion at the right side is slightly delayed but otherwise normal.

Discharge Note.—On December 21 a right nephropexy was done under spinal anesthesia by the new Lowsley tape technic. Following this the patient had considerable difficulty with nausea and vomiting. After nine days temperature subsided to normal and remained normal. Wound healed. She was discharged on the twenty-eighth postoperative day. Uroselectan was done on the twenty-fifth postoperative day to check up the position of the kidney. This showed the right kidney to be in excellent position, fully several inches higher than it was previously. The excretion on the right side was slightly delayed. Patient discharged to Dr. Lowsley's office. Admitted, December 21, 1934; discharged, January 18, 1935; diagnosis, right nephroptosis; operation, right nephropexy; result, cured.

DISCUSSION

The operation of nephropexy has been subjected to much criticism. This is undoubtedly due to the fact that there was a period of time in the history of modern surgery during which many injudicious operations were performed upon the nephroptotic kidney.

A word of caution is perhaps indicated. It would seem inadvisable to elevate and fix both kidneys in the presence of general enteroptosis because the liver takes part in such sagging; in that case such a heavy organ would press down upon the right nephropexy and add to the patient's discomfort rather than relieve it.

Very often a properly fitted belt will successfully maintain the position of the kidney although it may have to be worn indefinitely. It is our practice to try a belt for a period of many months before recommending that nephropexy be performed.

The relief given by nephropexy in suitably selected cases is very spectacular. It is our opinion that this operation should be performed much more frequently than it is being done at the present time.

899 Park Avenue.

TUBERCULOSIS OF THE GENITO-URINARY SYSTEM

C. E. BURFORD, M.D.

ST. LOUIS

Tuberculosis of the kidney has been recognized and treated by operative methods since the advent of aseptic surgery. According to Mathé, Facklam collected 108 cases in 1893 in which he noted that nephrotomy was followed by a mortality of 60 per cent and nephrectomy by a mortality of 28 per cent.

In 1896 Cramer, Israel, Watson and Persson were resecting regions of localized tuberculosis but this was soon given up except in a few cases of bifid kidney with separate blood supply.

In 1908 the mortality had been reduced to 11.1 per cent in the hands of leading surgeons. In 1913 Braasch reported a mortality of only 2.9 per cent in 203 patients operated on at the Mayo Clinic. This lowered mortality must be credited in a large measure to the work of Edwin Beer who led the urologist in preoperative and postoperative care and standardization of these cases.

Read at the 78th Annual Meeting of the Missouri State Medical Association, Excelsior Springs, May 6-9, 1935.

The dissemination of the disease from other organs to the kidney and the pathology of the lesions have been a matter of intense study and much experimental work during the last fifteen years. There still remains much difference of opinion as to the ability of the kidney to heal a tuberculous lesion although this is quite generally admitted in regard to the small lesions in the cortex. Another question is still a matter of debate in some quarters, i. e., the question as to whether or not the normal kidney may eliminate tubercle bacilli from the blood stream as an excretory bacilluria. Medlar and Sasano¹ quote Hobbs, Hymann and Mann, Wildbolz and Barney as believing that the normal kidney may excrete tubercle bacilli. Medlar and Sasano in experimental renal tuberculosis in guinea pigs after sectioning all kidneys completely, conclude that there is no evidence to support excretion of tubercle bacilli from a normal kidney. Thomas and Kinsella² after carefully comparing clinical findings and autopsy specimens in a tuberculous sanatorium conclude that the normal kidney cannot eliminate tubercle bacilli.

Lieberthal and Húth in reporting their findings in 1000 cases of nephrectomy for tuberculosis are firmly convinced that tubercle bacilli alone in the separated urine, even in the absence of pus and functional defect, indicate the presence of a tuberculous focus in the kidney.

Medlar found in his experiments on animals that the bacilli were carried by the blood stream to the kidneys and the most frequent site was the glomerulus or tubular capillary, and being small they rarely form abscesses. The vessels being larger in the corticomedullary region and the area of the arcuate arteries, the emboli are larger and form abscesses more frequently which rupture into the pelvis and produce the destructive lesions.

The individual resistance to the disease must be a factor in determining whether a lesion will become destructive or merely inflammatory in character. Statistics and opinions differ as to the original unilateral or bilateral character of the infection. It has been our experience that clinically 75 per cent of the cases have been unilateral and this is in keeping with the majority of reports up to the last five years. However Thomas and Kinsella have found in examining a series of cases in the very early stages of renal tuberculosis that 65 per cent show bilateral involvement. In explanation they

suggest that one kidney may have very small or less destructive type of lesions than the other and that these lesions may heal completely.

All of us who have observed individual cases of kidney tuberculosis have seen cessation of the symptoms, functional improvement and disappearance of the bacilli for long periods of time. In 1915 the reader reported³ a case of tuberculosis in a solitary kidney in whose urine Dr. Victor C. Vaughan found tubercle bacilli in 1895. In 1906 when he came to me the urine from the right and only kidney showed acid-fast bacilli in every field, corroborated by guinea pig test. A few years later a large abscess ruptured into the pelvis of his kidney, discharging pus, staphylococci and tubercle bacilli, and the patient had suppression of urine and was unconscious for many hours. He then recovered, was put on tuberculin treatment for more than a year, resumed active work as a college professor which he carried on until his death in 1925 from hemorrhage of gastric ulcer. Thirty years of proved urinary tuberculosis and at least 19 years of active life with only one kidney and that tuberculous is a unique record.

Several authors give nephrectomy for tuberculosis as comprising one third of all nephrectomies. This has not been true in our experience. During the last ten years not more than one sixth of our nephrectomies have been for tuberculosis. Pyonephrosis, hydronephrosis, nephrolithiasis and kidney tumors have been the common causes for nephrectomy. The impression we have had that genito-urinary tuberculosis is becoming less frequent is crystallizing into an opinion. Caulk⁴ states that the incidence of tuberculosis of the kidney has been reduced 15 per cent in 13 years in his clinic.

Braasch and La Pena⁵ speculate on the possibility of the tubercle bacillus losing its virulence or of the present generation developing a greater resistance to the disease because they do not see the cases of overwhelming destructive type of lesions familiar to them a decade ago. This is indeed interesting and should stimulate the medical profession to greater efforts as a victorious army is inspired to greater deeds of valor.

Formerly the first symptoms of kidney tuberculosis were usually referable to the bladder, such as urinary frequency, reduced capacity of the bladder, pyuria, hematuria and burning sensation on voiding. These we now believe are late symptoms but in more than 50 per cent of the cases are the

first manifestations observed by the patient. Thomas believes that an albuminuria developing in any case of pulmonary or unilateral kidney tuberculosis should be construed as a preclinical stage of tuberculosis of the remaining normal kidney.

Pain in the region of the affected kidney is a symptom in only about one third of the cases. This corresponds to Young's experience⁶ but Henline finds kidney pain a symptom in 75 per cent of his cases.⁷ Kidney pain may be due to abscess formation or to disease of the ureter interfering with drainage. Some cases run a febrile course especially if complicated by mixed infection. There still remain a certain number of cases that show no clinical symptoms from the kidney or the bladder and the diagnosis must be made entirely by finding the tubercle bacilli in the urine either by direct stain or guinea pig inoculation.

We must keep in mind the similarity of the tubercle bacillus and the smegma bacillus and secure the specimens in such a manner as to eliminate the smegma bacillus. Careful cleansing of the external meatus before voiding in the male, and cleansing and use of a catheter in the female are necessary. The guinea pig test is best used as a check and is reliable if positive and most valuable if the staining method is negative. We have been able in 85 per cent of our cases to make the diagnosis by finding acid-fast bacilli in carefully centrifuged specimens, often repeated in some cases because we know the tendency of tubercle bacilli to appear in showers when small abscesses rupture and drain into the kidney pelvis.

Intravenous urography in our hands has been perfectly harmless and of inestimable value in cases of strictured ureter and ulcerated contracted bladder where ureter catheterization is difficult or impossible. However, these cases have been few and we feel that nothing can substitute for the knowledge gained by cystoscopic view of the bladder, functional tests and retrograde pyelograms.

There has recently been much criticism of the use of pyelography in tuberculosis as being unnecessary or dangerous. Chief among these critics is Kearns⁸ who shows human kidneys injected with 20 per cent sodium iodide after removal for tuberculosis and demonstrates tissue infiltration and venous back flow at certain pressure. In reply to this criticism I wish to quote Thomas⁹ as follows: "In our clinic the intravenous method of urography has not been

particularly valuable. It does not visualize the minor filling defects which may be observed with the retrograde method." He further states "We have been criticised because we make repeated bilateral pyeloureterograms with renal tuberculosis. We have made hundreds of pyelograms without observing the spread of tuberculosis into or from the kidney. We have not observed miliary infection or meningitis following or as a result of retrograde pyelography."

We have seen no tissue infiltration in any of our pyelograms nor have we noted chills, undue temperature rise or other indication of complications although we have always made pyelograms where it was possible to catheterize the ureters. To be sure, we are careful of the pressure used in filling the pelvis and if uncertain of the capacity, a partial filling and repetition with more pyelographic fluid is preferable to overdistension. Skiodan and hippuran have been the solutions used in recent years because of their nonirritating quality. While the pyelogram usually shows lesions that are typical of tuberculous destruction either as the fine feathery markings mostly about the tips of the calyces or the large destructive open abscess cavities or filling defects as well as the hydronephrotic type, or the older calcareous deposits, there are some pyelograms that cannot be properly interpreted without the finding of tubercle bacilli from the kidney.

Probably more than 50 per cent of kidney tuberculosis can be diagnosed by the bladder picture alone. The typical retracted ureteral orifice showing a diseased ureter is pathognomonic. There may be ulcerations about the ureteral orifice, in the fundus of the bladder or even on the opposite side from the affected kidney. The bladder may appear absolutely normal containing urine laden with tubercle bacilli. The condition of the bladder is often the determining factor as to when to operate for unilateral tuberculosis. Cabot observed many years ago that the older cases of kidney tuberculosis recovered more promptly with fewer complications following nephrectomy than those cases that had shown symptoms for but a few months.

It is very essential to know that the patient has developed sufficient resistance to the disease before operation is undertaken. The cooperation of the internist, the laboratory and the roentgen ray is absolutely necessary to the proper handling of the case. It is now generally recognized that genitourinary tuberculosis is but a local manifesta-

tion of a constitutional disease; therefore systemic treatment, rest, proper hygiene, heliotherapy and the use of tuberculin are imperative both before and after operation.

The only two deaths we have had following nephrectomy for kidney tuberculosis were from tuberculous meningitis. One had a quiescent pulmonary tuberculosis, an early destructive type of renal tuberculosis with much bladder irritation. Meningeal symptoms began ten days after nephrectomy and proved fatal in another seven days.

The second case was first seen with a tuberculous epididymitis which had necrosed and was draining. He had a pyuria but acid-fast bacilli were not found. Epididymectomy was done and the wound healed promptly. Two weeks later tubercle bacilli were found in urine from left kidney and nephrectomy was done. A destructive type of lesion was found in the kidney and the ureter was thickened and hard. The wound healed and patient went home but returned in five weeks with intense headaches and died within two weeks of a typical tuberculous meningitis.

In the light of later experience and reports in the literature, neither of these patients had built up sufficient resistance to the disease. They should have had longer periods of general care and constitutional treatment, together with enforced bed rest. Nephrectomy for kidney tuberculosis has never but once in our experience been an emergency operation. This was a much emaciated female with one normal and one completely destroyed tuberculous kidney, who became thoroughly septic from mixed infection and almost complete blocking of the infected ureter. Nephrectomy was done in the presence of high temperature and a rapid feeble pulse. With only a drachm or two of ether for the initial incision the remainder of the operation was carried out rapidly without anesthetic and a perfectly limp patient. This patient made the most rapid and complete recovery of any in our experience regaining 40 pounds she had lost and complete bladder recovery.

In bilateral tuberculosis, with advanced destructive lesions in one kidney and a mild infection with fair function in the other, we find authority both for and against nephrectomy. Herman and Green¹⁰ and Caulk¹¹ do not operate. Henline¹² believes it best to remove bad kidney in bilateral involvement and has noted clinical improvement in such cases. It seems this should be an individual problem. No doubt there are a few cases

that can be made more comfortable and whose life will be prolonged by operation. We have no new technic of operation to offer. Gentleness of manipulation of the diseased kidney and removal of perirenal fat are important. Our best results have been with ligation of the ureter, cauterization of the stump and dropping it in the wound. We have occasionally injected pure phenol down the thickened ureter with good results to the bladder. We always drain the wound. Most bladders show immediate improvement after nephrectomy.

Half the remaining cases improve slowly, commensurate with the length of time they have been involved. The remaining cases are intractable and constitute one of our severest problems. Irrigations with antiseptics and gradual dilatation of the bladder may help. Gomenal oil, emulsions of iodoform and 25 per cent pure grain alcohol as first suggested by Keyes has benefited some cases decidedly. Bed rest will do much for these cases. Heliotherapy is always indicated but under the direction of an expert.

Genital tuberculosis is found chiefly in three locations and in autopsy reports one involvement frequently includes the other two. Whether the seminal vesicles, the prostate or the epididymis is the primary genital focus is an age-old question and one that is not entirely decided by scientific data. The epididymis is usually the first to give clinical evidence of the disease. Genital and urinary tuberculosis are frequently found together. The genital involvement is frequently a direct extension from the bladder through the posterior urethra and shows a low resistance to the disease. The diagnosis of tuberculous epididymitis is easily made. The epididymis is hard, sensitive, nodular; later with fluctuating areas which become attached to the skin and discharge through sinuses which do not heal. The testicle rarely becomes involved. The vas is thickened and tender.

Orchidectomy should not be done because of the tendency for the other side to become involved within a year. We have seen six cases with tuberculous epididymitis on one side that had undergone orchidectomy of the opposite side for the same condition. In each of these cases we were able to dissect off the diseased epididymis and save the remaining testicle.

The prostate and vesicles may be involved but usually subside and require no special attention after the epididymis is removed. Direct sunlight and artificial heliotherapy

are of great benefit to this particular lesion both before and after operation. As in tuberculosis of the urinary tract so is it in genital involvement; the local manifestation is but a part of a systemic disease and the doctor whose efforts will be crowned with the greatest success in treating this disease which is confined to no sex, occupation, social condition or race, will be the one who treats the local disease but keeps in mind the individual.

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BIBLIOGRAPHY

1. Medlar, E. M., and Sasano, K. T.: *Am. Rev. Tuberc.* **10**:351 (December) 1924.
2. Thomas, Gilbert J., and Kinsella, T. J.: *Tr. Am. A. G. U. Surgs.* 1932.
3. Burford, C. E.: *J. Missouri M. A.* **12**:403 (September) 1915.
4. Caulk, John R.: *Tr. Am. Urol. A.* 1930.
5. Braasch, W. F., and La Pena, A.: *Penn. M. J.* **34**:769 (August) 1931.
6. Young, Hugh H.: *Young's Practice of Urology.*
7. Henline, Roy B.: *Surg. Gynec. & Obst.* **57**:231 (August) 1933.
8. Kearns, Walter M.: *Radiology* **9**:109 (August) 1927.
9. Thomas, Gilbert J.: *Tr. Am. A. G. U. Surgs.* 1932.
10. Herman, Leon, and Greene, Lloyd B.: *Penn. M. J.* **34**:774 (August) 1931.
11. Caulk, John R.: *Tr. Am. Urol. A.* 1930.
12. Henline, Roy B.: *Surg. Gynec. & Obst.* **57**:231 (August) 1933.

DISCUSSION

DR. H. McCLURE YOUNG, Columbia: There is one point on which I would like to ask Dr. Burford to elaborate. If I understood correctly, he says in caring for the stump of the ureter he ties it off and sinks it into the wound because he once got into trouble by sewing it into the lower angle of the wound. If it is tied off and cauterized I cannot see the objection to sewing it into the lower angle of the wound. If the wound subsequently opens and you get a reflux from the bladder when you take the ureter out you can do it much easier if it is anchored to the lower angle of the wound. If suppuration follows from this stump it will be superficial. If a fistula forms it will be a short one.

As for injecting pure phenol into the ureter at the time of operation I recall one case in which I did the opposite of this. I cystoscoped a patient who had a troublesome fistula following nephrectomy. I catheterized the ureter and injected a little pure phenol into it through the catheter immediately flushing the bladder to protect it from the escaping phenol. In this way I succeeded in closing the fistula. It should perhaps be mentioned, however, that this case was one of pyonephrosis and not a tuberculosis.

DR. C. E. BURFORD, closing: Answering Dr. Young's question, we have found that by ligating the ureter, cauterizing the end and dropping it into the wound, the wound heals. We have never had to remove any of these ureters later although some are very much thickened. If the ureter is fastened next to the skin it is also next to infection. We cannot keep the skin sterile and there is much more danger of infection. I think it is the general practice to ligate the ureters, cauterize and drop them into the wound. We have never had to open a wound to remove the ureter in tuberculosis.

COMPLICATIONS DEVELOPING AFTER OPERATION FOR RECTAL FISTULA

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It is well known, not only to the medical profession but also to the laity, that many operations are performed for the cure of rectal fistulae that do not have a successful termination. Over 50 per cent of the patients suffering from a rectal fistula who appear at the office of a proctologist state that they have been operated upon one or more times and are still seeking relief. In nearly every case one operation should have sufficed had it been done correctly. Recurrence of the fistula, loss of sphincter control and subsequent tuberculosis following an operation for rectal fistula has placed this operative procedure in a bad light in the minds of the laity.

It has been estimated that tuberculosis rates from 2 to 5 per cent as the etiological factor in rectal fistula, and in certain rectal clinics in Europe it has been reckoned as high as 15 per cent. Every tuberculous sanatorium and hospital has a rather high incidence of patients suffering with rectal fistula as a further complication of the tuberculosis. There is an old adage among the people that an operation performed for rectal fistula will be followed by general tuberculosis. This observation is well founded but the truth of the matter is not well understood. Among the tuberculous patients who have rectal fistulae at Koch Hospital in St. Louis, it has been noted many times that the first symptom of the tuberculosis is the formation of a fistula to be followed subsequently by tuberculosis in the lungs. A careful examination made at the time of the discovery of the rectal fistula in each and every case will show a tuberculosis present in the lungs but possibly unsuspected. All rectal fistulae occurring in tuberculous patients are not tuberculous. The indication for operation in tuberculous fistula should be restricted by some very definite rules.

(A) The internal opening into the bowel which invariably occurs at the mucocutaneous line should be demonstrated either by the passage of a probe or the injection of methylene blue before an effort is made to operate upon the fistula. Fistulae that conform to these rules are easy to operate

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From the Department of Surgery, Washington University School of Medicine.

on under spinal anesthesia without any bad effect to the patient and the healing is not unduly prolonged.

(B) Perirectal sinuses in which the probe extends high in the perineum and methylene blue does not appear in the rectum should not be operated upon. Many operations have been performed in an unsuccessful attempt to heal this type of fistula and have resulted in considerable mutilation, great destruction of tissue and a decidedly bad reaction upon the patient. This group of patients is subjected not infrequently to unsuccessful operations and invariably are left in far worse condition than they would have been otherwise. There are five sources which can account for this type of discharging sinus, viz.:

1. Broken down tuberculous glands of the perineum with discharging sinuses similar in every respect to broken down glands in the neck.

2. Tuberculous epididymitis and tuberculous seminal vesiculitis occasionally rupture through and discharge upon the perineum.

3. Tuberculosis involving the sacro-iliac joint and the bones of the pelvis.

4. Tuberculous Pott's disease of the spine, including vertebrae from the twelfth down to the fourth, occasionally form fistula which present upon the perineum.

5. Pilonidal sinus.

In the above classification of perineal sinuses it is quite obvious that failure will attend any attempt at operation based upon the assumption that they are in any way connected with the rectum.

Lymphogranuloma of the rectum is a disease occurring particularly in Negro women. It results in a stricture in the lower rectum and subsequently develops fistula. Many mistaken attempts have been made to operate on this type of fistula but the results are poor. The patient does well to escape with the recurrence as more often in the attempt to eradicate the fistula the sphincter muscle is destroyed and complete incontinence results. In this disease the fistula is a secondary factor resulting from the obliteration of the rectal lumen. The fistula often is cured spontaneously when the contraction of the rectal lumen is relieved. In a like manner, fistula forms in the late stage of carcinoma involving the lower rectum and any attempt to treat such a fistula with the idea of effecting a cure is obviously not to be considered. Occasionally, carcinoma develops in the tract of the fistula and the neglect to save

tissue for laboratory examination has in more than one case delayed the opportunity to attack the carcinoma. It is only by the recurrence of the fistula in the center of fibrous and granulomatous tissue that the physician first suspects the possibilities of a carcinoma. One such case stands out particularly in which two previous operations had been performed for the cure of a rectal fistula. It was only at the third attempt upon the part of the patient to gain relief that the true nature of the fistula was determined.

By and large, the greatest cause of recurrences from an unsuccessful operation for the cure of rectal fistula is the incomplete operation. The operator in many cases apparently has no conception of the formation of a rectal fistula or where to hunt for the internal opening. He does not seem cognizant of the fact that rectal fistulae do not always enter the rectum in a straight line opposite the external opening. There is a well known tendency for the fistulous tract to extend directly from the external opening to the rectal mucosa and then partially circle the circumference of the anus to appear at the posterior commissure. As has been pointed out in every modern textbook on proctology, the internal opening almost invariably occurs at the mucocutaneous juncture. It is only in those rare instances where foreign bodies have perforated the wall of the rectum that the internal opening is found higher than the mucocutaneous line. In the anterior half of the anal circumference the tract is more likely to lead straight into the rectum, and little difficulty is experienced in passing a probe directly into the rectum. It is to be remembered, however, that an external opening may appear high up on the perineum and still develop from an opening in the posterior commissure. From the general appearance of the perineum following this unsuccessful attempt it becomes quite apparent that the operator has lost his way in the maze of fistulous tracts and scar tissue and in desperation has done one of two things; namely, either abandoned the operation, which is by far the most sensible thing to do, or in an attempt to find an internal opening has forced a probe through normal mucous membrane thereby completing a false opening. The sphincter may be cut and may or may not result in incontinence. Rectal incontinence is by far the most dreaded complication of all postoperative catastrophies. This fear is well grounded in the minds of the laity and has rendered

many a person a semi-invalid suffering the distress which accompanies a rectal fistula simply through the fear that incontinence may follow an operative procedure. This fear on the part of the laity is not altogether unwarranted as many people are suffering from incontinence as a result of improperly performed rectal operations.

At this point it is necessary to make a brief resumé of the development of a rectal fistula. First there is a break which takes place at the mucocutaneous line with an infection carried in the perirectal or ischio-rectal fossa. This is followed by the formation of an abscess. An abscess with the history of two or three days' duration can have completely destroyed the fat of the ischio-rectal fossa. Such an abscess may spontaneously rupture on the perineum thereby developing a complete fistula which will within a month or six weeks reduce itself to a fibrous tract. In the second group, the pus collects in the ischio-rectal fossa and drains back into the rectum thereby forming an incomplete fistula. The third possibility is that at some point in the formation of the abscess surgical intervention takes place and the abscess is drained. No danger of incontinence can ever follow the simple draining of an abscess, but a subsequent operation some two to three months later will be necessary for a complete cure. However, when the operator attempts to complete this procedure by locating the internal opening and completing the operation at the time of the opening of the abscess the possibilities of incontinence to follow are very great. The normal perirectal structures have been destroyed in the formation of the pus so that when the sphincter muscle is cut across there is no anchorage to support it and being a contracting muscle the two ends are pulled apart and complete or incomplete incontinence results. This hazard is so great that no one is justified in jeopardizing his patient by cutting across the sphincter muscle at the same time as the evacuating of the abscess. This responsibility rests entirely upon the shoulders of the operator and under no circumstances should he weaken although he will find that he is urged to take this step not only by the patient or the family of the patient but sometimes by the referring physician. It is well to remember, however, that if incontinence results the blame will be placed upon the shoulders of the operating surgeon.

In the male, irrespective of any particular point that a fistula may present in the entire

circumference of the anus, the possibility of incontinence following a properly performed operation is very negligible. In contradistinction to the ease with which the sphincter ani may be cut across in the male the surgeon must ever remember that in dealing with the sphincter ani in the female exactly the opposite of this is true and that only in the simplest cases should these operations be regarded lightly. The hazard of incontinence in the female proportionately multiplies as the fistulous opening tends to form toward the center of the vagina anteriorly. Fortunately, fistulae involving any more than mucous membrane rarely occur in the center of the vagina; but at the angles of the vagina the fistulous opening is frequently found. Whenever the sphincter is cut across at this point the possibility of incontinence is high. Since throughout the entire anterior circumference of the sphincter ani a relatively high percentage of fistulae occur in women the proper surgical attack should be well considered. The sphincter ani in the anterior circumference is loosely supported; the fibers arise as in the male from the coccyx and divide to pass to the right and the left of the anal opening. The external sphincter fibers are inserted anteriorly in the superficial transversus perineal muscle and loose fat found freely distributed at the lower margin of the vaginal outlet. The anterior attachment of the sphincter muscle in the female is far less stable than in the male.

The sphincter ani is a muscle of both voluntary and involuntary action. Normally it is in a constant state of contraction. It is impossible to expand the rectal lumen voluntarily. Since this muscle is in a constant state of activity and contraction, any operative procedure that severs it completely in the anterior circumference permits the muscle to contract voluntarily and thereby retract the cut ends one from another. As this incision approaches the center of the vagina the retraction is greater. After such an incision is healed a distinct furrow is seen extending well down into the anus. Often this groove is so wide and deep that it would hold a lead pencil. Unless the patient adheres strictly to a constipating diet she is in danger of sudden loss of large quantities of liquid bowel movement. She has no control over the passing of gas and with large expulsions of gas is often soiled by liquid feces. Much thought and effort has been spent over the problem of correcting this distressing situation. In the first place various types of pads have been devised,

but owing to the necessary amount of pressure required they are most uncomfortable to wear. Many mechanical appliances such as plugs and specially constructed stoppers to be placed within the rectum have been tried and discarded. The patient soon learns that she must endure for the remainder of her life an absolutely restricted diet, no indulgences in sweets, seasonable fruits, water or musk melon or the malt liquors, without the penalty of twenty-four hours of soiling. She learns so to construct her garments that they fasten securely about her thighs with elastic rubber bands, and the material must be waterproof so that in case of an accident she can at least prevent the public soiling of her outer garments until she can seek privacy where she can make a change. The social limitations so handicap an otherwise normal healthy woman that she is decidedly limited in accepting an invitation that might in any way jeopardize or place her in an embarrassing condition. She fears to leave her home, long automobile trips are absolutely excluded and an afternoon's social game of bridge when indulged in is anticipated with anything but pleasure in fear of what may happen to her. If it has been the misfortune of any doctor to have incontinence develop in a young woman on whom he has performed this operation he will thoroughly appreciate every statement I have made and will probably add a few more lamentable facts that would paint the picture even darker.

Thus the patient comes to the surgeon seeking relief following a distressing experience after what was supposed to be a comparatively simple operation. Since, as I have already stated, fistula in the anterior circumference occurs frequently it is wise to have a well thought-out plan of operation that will positively avoid the danger of complete or incomplete incontinence. At this time it would be well to state that rectal surgery should not be looked upon as minor surgery, the type that can be done easily in the office or at best with one or two days in the hospital. For example, eye surgery is apparently a simple type of surgery as one casually watches a trained eye surgeon with a well placed incision and a few properly executed manipulations, quickly perform an operation that will result in the restoration of sight. But on the other hand these few simple incisions and manipulations can be so bungled in the hands of an improperly trained surgeon that any chance the patient might have had for the restoration of sight

is lost. So it is with rectal surgery. The accurate knowledge of the anatomy of the sphincter muscle, its attachments and its relation to the surrounding muscles and structures, is highly important to know. With a rectal fistula so situated, the surgeon should select a two-stage operation. For the performance of this operation in a two-stage attack the possibility of rectal incontinence is completely obliterated. When the patient presents herself for examination and the external opening is close to the vaginal outlet, a differential diagnosis has to be made between a possible rectal fistula and a chronically inflamed Bartholinian gland. Several years ago it was the writer's misfortune to have had to assume care of a patient on whom a previous operation had been performed. The surgeon who did the work evidently had no conception of what it was all about. In his effort, he had completely detached and removed the left half of the transversus perinei muscle leaving a large cavity between the vagina and rectum on that side. For some reason best known to himself, he had not cut across the sphincter muscle so, after healing, the patient still had a rectal fistula but with a large cavity from which all the gas from the bowel passed through the external opening and a considerable portion of liquid feces. In an attempt to reconstruct the perineal body it was necessary to cut across the sphincter muscle in the first operation thereby rendering the patient incontinent. At the second operation, three and one half months later, a complete reconstruction, including the rebuilding of the perineum and the suturing of the sphincter muscle, was performed. Fortunately the outcome was very satisfactory, but the three and one half months' incontinence was very distressing to the patient. To eliminate this period of complete incontinence and still devise an operation which would cure the fistula, the following procedure has been followed for the last five years: First, allow sufficient time to pass following the opening of a perirectal abscess, which is about two months. The patient is entered in the hospital for the first stage of the operative procedure. This consists first of the introduction of a probe to outline the fistulous tract from its external to its internal opening. Previous to entering the hospital the internal opening is located. It may be necessary to introduce methylene blue into the external opening in order to locate the internal orifice. The skin is incised well down to the anus and the dis-

section is carried outward to surround completely the external opening. A serious effort is made to excise the entire tract and any ramification of the tract that may be found. Often this dissection will extend under the labia majora and will expose a considerable portion of the vaginal wall. Particular care should be taken not to enter the vagina. After the tract with its probe has been well dissected out so that no fibrous tissue remains, the dissection is ended and the tract cut across just where it passes under the sphincter muscle. It will usually be found to pass between the fibers of the external sphincter and the internal sphincter. A large size silver wire is now introduced through the remaining portion of the fistulous tract and passed out through the rectum and cut off short. The two ends of the wire are now twisted together so that the wire fits snugly to the enclosed tissue. Thus we have a piece of silver wire completely surrounding the sphincter muscle and passing through the remaining portion of the fistulous tract. The wound is now packed widely open with iodoform gauze. No attempt is made to suture the resultant open wound. About every third day the wound is repacked. From six weeks to two months is required for the complete filling in of this wound. The end result is the healing of the original wound and a fistulous tract directly at the margin of the sphincter muscle. In the meantime, during the process of healing and replacement of the wound with fibrous tissue, the exposed sphincter muscle is firmly attached through the fibrous tissue within the wound itself. The second stage consists of local infiltration anesthesia in the orifice and cutting across the sphincter muscle, thereby freeing the wire.

Thus a two-stage operation can be performed which will cure the fistula, irrespective of where it is located in the anal circumference, without the danger of loss of bowel control.

There is no excuse today for any woman suffering partial or complete loss of sphincter control as the result of a perineum lacerated in childbirth or from any type of trauma that might destroy the perineum or sever the sphincter muscle.

It is now possible to restore the parts to their normal state of function and insure complete control of the bowel. Thus, in summarizing, one might say that to avoid complications in the treatment of perirectal fistula, it is important to make a diagnosis, know the anatomical relation and the physi-

ological action of the sphincter, and have a definite plan of operative procedure.

University Club Building.

GASTRO-INTESTINAL SERIES, IN- TRAVENOUS AND ORAL CHOLECYSTOGRAPHY

THE METHODS IN USE AT THE EDWARD
MALLINCKRODT INSTITUTE OF RADIOLOGY

WENDELL G. SCOTT, M.D.

ST. LOUIS

A gastro-intestinal series (G. I. Series) is not only a study of the lumen of the gastro-intestinal tube by an opaque meal of barium sulphate, but it is also an accurate test of the physiological function of the entire tract. The conception of examining the gastro-intestinal tract by an opaque substance resulted from the brilliant work of a then young Boston medical student, Doctor Walter B. Cannon.¹ Such a study of the lumen does not include the walls of the canal, a fact frequently overlooked by the profession. It should be remembered that either an organic or a functional disturbance in one segment of the alimentary tract causes a derangement of all segments. Likewise, gastro-intestinal symptoms are often the secondary result of a primary extra-alimentary disease.

The high degree of accuracy that the gastro-intestinal examination has attained in this institution is in part due to the fact that an entire series is insisted upon rather than permitting special regional examinations, such as a barium enema, stomach fill-up, or a special appendix observation. The diagnostic examination of a single segment of the tract merely to test a clinical deduction is a fallacious practice. The following are clinical considerations which make the complete examination advisable: First, the motility of any segment of the alimentary tract can only be judged by knowing the motility of the immediate proximal and distal segments. Such motilities are important in the diagnosis of intestinal tuberculosis, typhlitis, colitis and duodenal stasis. Second, that multiple diseases often exist, illustrated especially well by the coincidence of peptic ulcer, appendiceal and cholecystic disease. For this reason cholecystography is included in a complete examination of the gastro-intestinal tract.

The technic of the gastro-intestinal ex-

From the Edward Mallinckrodt Institute of Radiology, Washington University School of Medicine, St. Louis.

amination is the result of a number of years of intensive study and labor. The original outline was formulated by Doctor R. Walter Mills and Doctor Russell D. Carman,² who were colleagues at the Washington University Medical School some twenty-three years ago. Together they laid the foundation for the modern American school of gastro-enterology and gastro-intestinal roentgenology. This association came to an end when Doctor Carman went to the Mayo Clinic in 1913 and Doctor Mills continued with the Washington University group. To Doctor Mills belongs the greatest credit for his remarkable skill and ingenuity in perfecting what is now called the gastro-intestinal series. Since his death in 1924, Doctor Joseph W. Larimore has continued and elaborated this fundamental plan. In addition he has increased the efficiency of the examination by adding the important special appendix film³ which permits a more accurate diagnosis of appendicitis.

At the Mallinckrodt Institute of Radiology both the fluoroscopic work and the taking of films are done by the same observer. Roentgenoscopy and films are considered as indispensable complements to each other. The screen is used to make exhaustive observations in various positions of visceral deformity, mobility and topography. The film is essential as a record and often gives greater detail.

The only preparation required the night preceding the gastro-intestinal series is that the patient have nothing by mouth after 10 p. m. He is called to the gastro-intestinal floor of the roentgen ray building at 9 a. m. without breakfast. An initial palpation of the abdomen is made for the purpose of defining any masses, areas of tenderness, position of operative scars and otherwise outlining any direct problems for roentgenological investigation. Following the classical work of Doctor R. Walter Mills⁴ on "The Relation of Bodily Habitus to Visceral Form, Position, Tonus and Motility," all films except the twenty-four hour, barium enema and appendix are made with the patient in the upright position so as better to determine the visceral relationships which are normal for that individual. A scout fluoroscopic examination is made noting the lung fields, heart, diaphragm, the presence of large gas filled loops of intestine, etc. The patient is then given a thick paste composed of two ounces of barium sulphate in 70 cc. of water for the purpose of determining, first, the presence of a residual gastric secretion; second, to study the gastric rugae

and mucosal pattern with the aid of external pressure and, third, to visualize the initial clearance of the barium through the three portions of the duodenum. After the fluoroscopic study the B and W film (barium and water) is taken. The patient is then placed before the fluoroscopic screen in the oblique position and drinks two glasses of barium and buttermilk (four ounces of barium mixed with one glass of water and one of fermelac) while the esophagus is carefully observed for diverticula, levels of obstruction, displacement, abnormalities of peristalsis, etc. The stomach is again searched for filling defects, craters, niches, types of peristalsis, masses, and so forth, before exposing the B and F film (barium and fermelac). Particular attention is directed to the lesser curvature and posterior gastric wall, and lateral films are made to elucidate various defects.

During these examinations the contour of the duodenal bulb is carefully observed fluoroscopically for irregularities of contour, size, position, tonicity, speed with which it empties, presence of coinciding tenderness, etc. These observations are especially important from the fluoroscopic standpoint as lesions in the duodenal bulb frequently render it so irritable that the barium scarcely remains there for sufficient time to permit its reproduction on a film. The loops of jejunum are noted before the patient returns to the ward. The above routine constitutes a gastric fill-up.

The patient continues fasting and about 3 p. m. the six hour gastric motility film of Haudek⁵ is taken. This determines primarily gastric motility as shown by emptying and, secondarily, permits a study of the lower loops of ileum. Within the variations due to constitutional habitus the average stomach is completely empty of barium within five and one half hours and a gastric residual at six hours means a definite gastric motor impairment as the result of either a functional disturbance or an organic lesion. After this observation food and drink are allowed including the evening meal and sufficient fluids to make up for the period of starvation. It is urged that very ill patients take the full amount of their allowed food and fluids during the examination. Nothing is permitted to be taken by mouth after 10 at night and breakfast is omitted on the morning of the second day, so that if either the fluoroscopic observations or the films of the previous day are not entirely satisfactory the gastric fill-up can be repeated without delay.

On the second day the twenty-four hour

fluoroscopic study and film are made at 10 a. m. and two important observations are recorded. The first is to note the point of advance of the barium column which is an indication of colonic motility. At this time the patient should have had one bowel movement and the head of the barium column should be in the rectum. Second, the appendix area is palpated roentgenoscopically to determine not only visualization but also the presence of coinciding tenderness and mobility or fixation of the appendix and cecum. This routine maneuver is also of value in diagnosing other pathology of the cecum and ascending colon, notably tuberculosis, idiopathic typhlitis, regional ileitis and neoplasms. The patient then returns to the ward and may have food and drink as usual. At 11 a. m., or shortly before lunch, the patient is given a twelve ounce bottle of magnesium citrate for the purpose of clearing the lower bowel of opaque material preparatory to the barium enema. Patients with diarrhea should not be given the magnesium citrate and those patients who respond freely to laxatives should receive a small dose. Variations in dosages are the responsibility of the physician in charge of the patient and not of the roentgen ray department. If the patient is not to have oral cholecystography food and drink are permitted the remaining portion of the second day and breakfast is allowed on the third morning. If oral cholecystography is ordered the patient receives special instructions for taking the capsules on the second evening of the G. I. Series, and breakfast is omitted.

On the third morning about 9 a. m. a preliminary roentgenoscopic study is made to determine the presence of residual barium, its location and other factors warranting investigation. The patient is then given the barium enema slowly under fluoroscopic control while filling defects, the course of redundant loops, displacements of the colon, relationship of masses, tonicity, etc., are studied. An effort is made to fill the cecum entirely without forcing the ileocecal valve except in those cases where the terminal ileum is to be studied. The enema is retained and a film exposed in the prone position before the patient expels the enema and returns to the ward.

Doctor Joseph W. Larimore⁸ has shown that when the appendix is not visualized in the fed test it can usually be demonstrated after the barium enema because the uniform intracecal tension produced by the fluid enema tends to force the barium into the

appendix. The appendix film is made in the prone position two hours after the opaque enema.

In certain cases the combined or double contrast enema of Fischer⁶ is given immediately after expelling the routine enema by forcing air into the colon, the amount being determined by direct fluoroscopic observation. The contrast enema serves better to visualize the mucosal pattern and intraluminary growths, as polyps or neoplasms, diverticula and strictures. It is left to the discretion of the clinician in charge as to whether the patient should receive further laxatives or enemata to clear the alimentary tract. Occasionally patients with ambiguous or difficult findings are requested for supplementary examinations.

On the morning of the fourth day all data obtained from the gastro-intestinal study including films, fluoroscopic notes and special examinations are assembled for dictation. For accuracy conclusions must be kept within the data, and no diagnosis be made which cannot support the indicated treatment. The final reports are then distributed to the wards that afternoon.

A percentage figure (60, 70, etc.) is often attached to the diagnosis to give some conception of the relative weight that should be given to the purely roentgenological findings in the final clinical diagnosis. The degree of various abnormalities is frequently indicated as 1° (slight and somewhat inconclusive), 2° (definite and marked) and 3° (very pronounced). These have somewhat more of a geometrical than an arithmetical relationship to each other.

It is apparent from the extent and detail of this examination that it is a major ordeal for the patient. In addition to the laborious work the roentgenologist receives considerable radiation which multiplied many times is a definite hazard. In view of these facts gastro-intestinal roentgen ray examinations should be requisitioned only on a definite indication.

INTRAVENOUS CHOLECYSTOGRAPHY

The original report in 1923 of a new method for visualizing the gallbladder (cholecystography)⁷ by Doctors Evarts A. Graham and Warren H. Cole,⁸ of the Department of Surgery, introduced a new era in diagnostic medicine and gastro-enterology. The subsequent development and universal acceptance of this achievement ranks it in importance with the advent of the opaque meal. This test as noted by Doctor Sherwood Moore⁹ inaugurated a new principle

in radiography; namely, that the functions of an organ can be utilized for its visualization when an opaque substance reaches it through the blood stream. Cholecystography, therefore, is fundamentally a physiological test of the function of the gallbladder, liver and biliary tracts.

Certain conditions are necessary for the satisfactory visualization of the gallbladder. Briefly¹⁰ these are the following:

1. The dye must get into the blood stream in a sufficient amount.
2. The dye must be excreted by the liver into the bile.
3. It must reach the gallbladder and this necessitates patent hepatic, cystic and common ducts.
4. The patient must be fasting in order that the sphincter of the common duct can divert the bile through the cystic duct into the gallbladder.
5. The gallbladder mucosa must be sufficiently normal to concentrate the dye.

A single defective link in this chain of events results in either faint visualization or nonvisualization of the vesicle.

The intravenous administration of the dye is preferred to the oral method because it gives more accurate results; it simultaneously includes a liver function test; it produces fewer reactions and a known quantity of the dye reaches the blood stream. However, the oral method is simpler, less expensive and quicker. It is ideally adapted for the routine investigation of the gallbladder in patients receiving a gastro-intestinal series who do not present predominant clinical features of gallbladder disease. The problem of choosing between these two methods resolves itself largely into a matter of individual opinion and applicability.

At this institution Doctor Larimore has included oral cholecystography routinely in all clinic and ward patients undergoing a gastro-intestinal examination. The oral cholecystograms that are inconclusive of gallbladder disease are repeated by the intravenous method. Intravenous cholecystography is directly applied to practically all patients whose symptoms and findings primarily suggest gallbladder disease. A preliminary open film of the gallbladder region is routinely taken on the day preceding the intravenous injection. If gallstones are unquestionably visualized the patient's physician is notified and he may cancel the "Gramham Test."

Ampules of phenoltetraiodophthalein sodium are prepared in the Barnes Hospital pharmacy to insure the use of fresh solutions. In the preparation of intravenous solutions too much emphasis cannot be placed upon the necessity of using absolutely

clean glassware and freshly distilled water of known purity. Extreme care should be used in washing the containers, syringes, etc., free of lysol or other antiseptics which may drain into them from the sterile instrument used in their handling.

For adults the dosage is 2.5 gms. (38 grains) of phenoltetraiodophthalein sodium for patients weighing 138 pounds or over. Proportionately smaller doses are given to patients weighing less. In the preparation of a single ampule 2.5 gms. of phenoltetraiodophthalein sodium (iso-iodoikon)¹¹ are dissolved in 30 cc. (1 oz.) of hot triple distilled CO₂ free water. The solution is filtered through five layers of fine filter paper and placed in a glass ampule which is sealed in the gas flame and then sterilized in a boiling water bath for 20 minutes. An ampule prepared in this manner can be safely used within a period of three weeks.

The only preliminary preparation necessary for intravenous cholecystography is that the patient receive no fluids or food after midnight on the day preceding the injection. The following morning breakfast is omitted and the patient is sent to the third floor of the Institute at 8 a. m. The technic of the administration of the dye is well illustrated in figures 1 and 2. At present all the injections are performed by Dr. Louis Aitkin.

For the liver function test¹² 12 cc. of blood are removed, preferably from a vein in the opposite arm, exactly thirty minutes after beginning the administration of the dye. The blood is placed in a clean Wassermann tube, allowed to clot and sent to the laboratory.

Films are made in the prone position at 4, 8 and 24 hours after injection of the dye which in this routine are 1 p. m., 5 p. m. and 9 a. m. on the following morning. The gallbladder should be definitely visualized on the first film. At eight hours the shadow should have altered in size and increased in density. This capacity to alter in size is considered a measure of the elasticity of the gallbladder wall. The increased density is due to the concentration of the dye resulting from the absorption of water by the intact and functioning mucosa of the vesical.

After the second film the patient may have food and drink including supper and breakfast. A special fat meal is not considered necessary. The final film is taken the next morning, when the gallbladder shadow has normally disappeared or decreased considerably in size and density, demonstrating the ability of the vesical to empty. If both

intravenous cholecystography and a gastro-intestinal series are ordered the former precedes the latter and breakfast is omitted on the second morning. After the twenty-four hour film the patient begins the gastro-intestinal examination.

Reactions have caused no significant inconvenience to the patients and 70 per cent of them experience no reaction. The patients rest in a horizontal position for one half hour after the injection as a precaution against any constitutional reaction. Case¹³ found that hypodermic injections of 4 to 8 minims of adrenalin controlled urticaria and reactions simulating circulatory shock. Abdominal cramps and diarrhea following oral administration of the dye are best treated with codeine, aspirin and paregoric.

The only definite contraindications for intravenous or oral cholecystography are severe cardiac disease and patients with very low blood pressure. From a physiological viewpoint patients with acute liver infections, common duct obstruction or acute yellow atrophy of the liver, should not be submitted promiscuously to cholecystography. In patients with jaundice of any type the gallbladder is rarely visualized. The test should be deferred in patients with high fever, severe cachexia or marked dehydration.

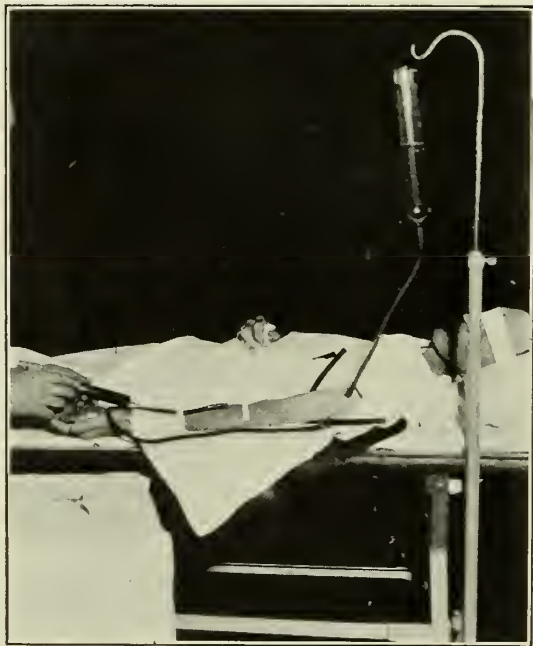


Fig. 1. Set-up for intravenous administration of phenoltetraiodophthalein sodium showing gravity flask containing 25 cc. of warm sterile saline solution (0.9 per cent). About 20 cc. of saline must first run in freely to verify the position of the needle within the vein.

ORAL CHOLECYSTOGRAPHY

Doctors Graham, Cole and Copher¹⁴ showed that the sodium salts of the halogenated phthaleins could be absorbed from the intestines after rectal injection. In the same paper they stated that "a new method of administering tetrabromphenolphthalein by mouth is being tried," but Menees and Robinson,¹⁵ on February 19, 1925, were the first to report successful oral administration of the dye for the production of cholecystograms.

Phenoltetraiodophthalein sodium presents no advantages over tetraiodophenolphthalein sodium in oral cholecystography and since the latter is less expensive it is used for this purpose. The capsule method as outlined by Doctor Joseph W. Larimore is the routine followed. The individual dosage by mouth is 4.7 grams (72 grains) of the dye. It is thoroughly mixed with 0.8 grams (12 grains) of pulverized agar and the mixture is put into 6 capsules, 00 size, coated with stearic acid. Thus each capsule contains:

Tetraiodophenolphthalein sodium (Iodeikon)
0.8 grams (grains XII)
Pulverized agar agar 0.13 grams (grains II)

The stearic acid serves to prevent the dissolution of the capsules by the gastric juices. As a further precaution one heaping teaspoonful of baking soda is given about 30 minutes prior to taking the capsules to increase the alkalinity of the intestines. The dye thus passes into the duodenum without being converted into the insoluble acid tetraiodophenolphthalein. The stearic acid

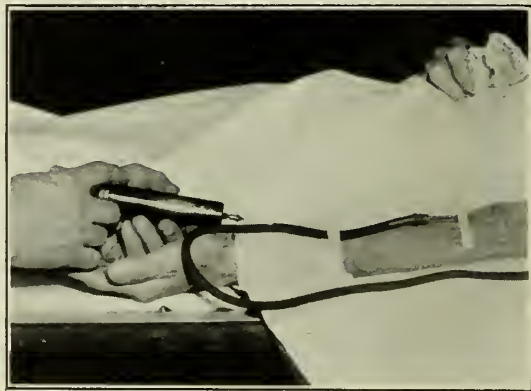


Fig. 2. The glass syringe containing 30 cc. of phenoltetraiodophthalein sodium solution (one ampoule) is shown inserted into the rubber tubing after first resterilizing the outside of the rubber tube with alcohol. The mixture of the sterile saline solution and dye is observed by the operator as it flows through the glass adaptor fitted to the needle puncturing the vein; thus the rate of injection of the dye can be absolutely controlled and stopped with the appearance of any toxic symptoms without interrupting the flow of saline. Fifteen minutes are required for the injection of the dye. Sufficient saline is run in after all the dye has been injected to wash out the vein.

coating is digested by the alkaline intestinal juices and, as the powdered agar becomes moistened it swells and spreads the dye over a large area for absorption. The agar also prevents acids from "caking" the dye. Tetraiodophenolphthalein is carried to the liver by the portal circulation where it is excreted in the bile. The gallbladder shadow is produced in the same manner as described under the intravenous method.

No preliminary preparation for oral cholecystography is necessary and it is preferable that the patient have the regular evening meal. At 7:30 p. m. the patient takes the soda in a half glass of water. Then, within the hour of 8 p. m. and 9 p. m. all 6 capsules are taken one right after the other with as little water as necessary to swallow them. Food and drink except for small amounts of water are prohibited and breakfast omitted. If oral cholecystography is ordered in conjunction with a G. I. Series, the capsules are given on the second evening of the gastro-intestinal examination.

Roentgenograms are made twelve, fifteen and eighteen hours (9 a. m., 12 noon and 3 p. m.) following the ingestion of the capsules. After the second film the patient has the regular noon meal.

Any adequate visualization of the gallbladder without abnormalities of position, size, contour or content (stones or papillomas) is considered normal. Very faint or nonvisualization associated with reactions, as severe diarrhea or early vomiting, is classed as indeterminate because loss of the dye vitiates the results. This occurs in a minimal number of cases and the test is repeated, preferably by the intravenous method. Satisfactory cholecystograms may usually be obtained if vomiting occurs 3 to 4 hours after ingestion.

An excellent summary on the interpretation of cholecystograms was prepared by Doctor Sherwood Moore¹⁶ in 1930.

I wish to express my appreciation to Doctor Joseph Larimore and Doctor Sherwood Moore for their help and advice in the preparation of this paper.

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BIBLIOGRAPHY

1. Cannon, W. B.: The Movements of the Stomach Studied by Means of the Roentgen Ray, *Am. J. Physiol.* **1**:359, 1898.
1. Ibid.: The Movements of the Intestines Studied by Means of the Roentgen Rays, *Am. J. Physiol.* **6**:251, 1902.
2. Carman, Russell D.: Lecturer in Roentgenology, 1911-12; Instructor in Surgery, in Charge of Roentgenology, Washington University Medical School, 1912-13.
3. Larimore, J. W.: Roentgenology of the Appendix, *Surg. Gynec. & Obst.* **51**:810-822, 1930.
4. Mills, R. W.: The Relation of Bodily Habitus to Visceral Form, Position, Tonus and Motility, *Am. J. Roentgenol.* **4**:4, 155-169, 1917.
5. Handek, M.: Die Technik und Bedeutung der rad. Motilitäts Prüfung, Ver. XXIX, Deutsch. Kong. fuer Int. Med., Wiesbaden, T. F. Bergman, 143-148, 1912.
6. Fischer, A. W.: Ueber eine neue röntgenologische Untersuchungsmethode des Dickdarms; Kombination von Kontrasteinlauf und Luftaufblähung, *Klin. Wochenschr.* **2**:1595, 1923.
7. "The Graham Test," as cholecystography has become known.
8. Graham, E. A., and Cole, W. H.: Roentgenologic Examination of the Gallbladder; Preliminary Report of a New Method Utilizing the Intravenous Injection of Tetrabromphenolphthalein, *J. A. M. A.* **82**:613, 1924.
9. Moore, Sherwood: The Development and Application of Cholecystography, *J. Missouri M. A.* **23**:17-21 (January) 1926.
10. Graham, Cole, Copher and Moore: Diseases of the Gallbladder and Bile Ducts, Philadelphia, Lea and Febiger, 1928.
11. Phenoltetraiodophthalein sodium for intravenous use and tetraiodophenolphthalein sodium for oral use are marketed by Mallinckrodt Chemical Works, St. Louis, as Iso-Iodeikon and Iodeikon, respectively.
12. Diseases of the Gallbladder and Bile Ducts, pp. 359-362.
13. Case, J. T.: The Relative Value of Cholecystography and the So-Called Direct and Indirect Methods of Roentgenologic Examination of the Gallbladder, *Am. J. Roentgenol.* **16**:238-250, 1926.
14. Graham, E. A.; Cole, W. H., and Copher, G. H.: Cholecystography: An Experimental and Clinical Study, *J. A. M. A.* **84**:14-16, 1925.
15. Menees, T. O., and Robinson, H. C.: Oral Administration of Sodium Tetrabromphenolphthalein: Preliminary Report, *Am. J. Roentgenol.* **13**:368-369, 1925.
16. Moore, Sherwood: Cholecystography An Analysis After Six and One-Half Years' Application, *J. A. M. A.* **95**:1957, 1930.

THE PRESENT DAY ROLE OF PHYSICAL THERAPY IN MEDICINE

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In the treatment of the sick our wonderfully equipped laboratories used for the diagnosis of human ailments attract but passing attention of the public; however, in the final analysis, it is the end result which is of utmost concern not only to the physician but also to the patient. The success or failure of any form of therapy or therapeutic agent in medicine is gauged by its action on living patients in restoring normal function. Contrary to the common impression imparted by clinical teachers, that if a correct diagnosis is made the treatment is easy, the fact remains that in the majority of instances the proper correlation of measures taxes the therapeutic ingenuity of the medical practitioner to the utmost. The proper choice of these measures oftentimes spells the difference between invalidism and health.

We have only to review medical history to note the trend of therapy throughout the centuries. From the time of the earliest man, massage and exercise were the first remedial measures to be used. This was the birth of physical therapy. Thence, newer methods were invoked, oftentimes at the expense of these simpler measures. As time progressed through the centuries we find the

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birth of surgery with the barber surgeons and the advent of medicine with the herb pickers. During the last decade of the last century a tremendous impetus was added to the scientific progress of medicine by the epoch making discoveries of Erlich in chemistry, Roentgen and D'Arsonval in physics. Erlich became the father of chemotherapy by his work of altering pharmacological reactions of chemical compounds by changing the radicals, particularly those on the benzene ring; this, in reality, was the birth of structural chemistry. This discovery has reached to such tremendous heights that today pharmaceutical houses have literally flooded the medical profession with preparations too numerous to mention. Roentgen's discovery of roentgen rays stunned the world; enthusiasm and imagination waxed high. The medical profession pounced upon it and were quick to see its possibilities and today it is a physical measure that is one of our most important diagnostic agents. D'Arsonval's discovery of high frequency currents seemed to have brought an entirely different reaction. Irregular and unethical practitioners were first to take it up and the resulting claims of efficacy were so exaggerated that scientific medicine soon put it into disrepute. It was not till nearly the end of the World War when the Government hospitals were filled with crippled soldiers that the cobwebs and stains were brushed from physical therapy and it was put to work in the process of rehabilitation. This period can be considered the rebirth of therapy by physical measures. The term, physiotherapy, by which this practice was first known and now held to be a misnomer was changed to an apparently more appropriate title, physical therapy. In some sections, particularly in England, steps already have been taken to classify the use of physical agents under the heading of physical medicine and all literature pertaining to the use of these measures in therapeutics is now listed under this latter heading.

Physical therapy may be defined as that branch of the practice of medicine which uses physical agents therapeutically. There are two classifications essentially identical except for the terminology. They are as follows: (1) Light, heat, massage, muscle re-education, electrical currents; and (2) phototherapy, thermotherapy, actinotherapy, electrotherapy, mechanotherapy, hydrotherapy.

Due to the vastness of this field of physical therapy, for it ramifies through every phase of medicine more in some branches

than in others, it would be most difficult for anyone to evaluate as a whole the application and correlation of physical agents. The brief time and space allotted to this discussion of "The present day role of Physical Therapy in Medicine" must of necessity be limited to several vital points which should be of interest to every medical practitioner. The two points that I shall discuss are ones which seem very interesting to me. They are: (1) The attitude of the public toward physical therapy, and (2) the attitude of many general medical practitioners toward this field of therapeutics.

The viewpoint that I want to present is mainly personal, one which was acquired not only from directing a physical therapy service in a large teaching hospital, but also from the numerous contacts made with practicing physicians in various parts of this country.

THE ATTITUDE OF THE PUBLIC

The attitude of the public toward physical therapy is manifested by much interest and from which has resulted the exercise of much imagination. It is a prevalent idea among the public that physical therapy is a new form of therapeutics and that in the near future physical therapy, particularly those measures electrical, will replace many of our now recognized surgical and medical procedures. Much of this interest has been stimulated to a great extent by the frequent appearance of articles such as "Friendly Fever" and "Doctor Heat," or "The Miracle Hands of Dr. Locke," as published in the various women's magazines by very versatile nonmedical writers who have been carried away by the subject. The public press has contributed much to stir the public mind by writing in very glowing terms of some new and apparently marvelous cures resulting from the application of electricity.

But why should we be interested in the public's frame of mind concerning physical therapy? To me there seem to be several very definite reasons why this matter should be given our very earnest consideration. (1) The patient is often presenting himself to the physician and practically demanding "Friendly Fever" or "Doctor Heat" in just those terms for this or that ailment. Oftentimes it takes a great deal of persuasion and argument to convince this patient of the need for a thorough physical examination before planning treatment, but this reasoning sometimes falls on deaf ears and the patient finds his way into less conscientious hands. (2) On the other hand, many pa-

tients are beginning to demand in no uncertain terms more personal ministrations and directions for their long convalescing ailments. The fracture patient rebels at nature having her own slow and irksome way without some coaxing to hasten recovery. He feels improved and soon senses that a quicker and better functional result is gained from heat, active exercises properly graduated and combined with massage. Enthusiastic opinions are soon passed along to ailing friends. The arthritic patient soon realizes the relief obtained from heat, exercise and massage when combined with other recognized therapeutic measures. The cardiac patient soon appreciates the efforts taken by the physician in giving the proper exercises within which compensation will be maintained and by which closer observation with cooperation will be had over a much longer period of time. These are but a few of the many attentions demanded of the general practitioner and the trials taxing his therapeutic ingenuity are apparently greatly increasing in number.

THE ATTITUDE OF GENERAL PRACTITIONERS

The attitude of general practitioners as a whole may be judged from the summation of their many and varied opinions expressed to the query of how they feel toward this question of physical therapy. Then, too, we can sense the attitude of a vast majority of medical men by reviewing the deplorable state of affairs resulting not only from abuse but also from omission, especially where the rational application of physical therapy oft-times spells the difference between invalidism and health.

On the one hand, we have a relatively small group of physicians who look upon physical therapy as tainted with quackery. To them the very mention of physical therapy brings a frown, very few realizing that many of the common procedures of routine therapeutics, such as rest and exercise, hot and cold applications whether by hot or cold water bags, hot bricks, etc., or fresh air, sunshine and climate, are but few of the physical agents belonging to this vast realm of physical therapy. I have been led to believe from their attitude that it is far beneath their dignity to massage a fractured extremity or to give systematic instruction in the proper exercises. Few of their number seem to know that heat, massage and exercise play a most important part in correlating the treatment of chronic arthritis. It would be far beneath the dignity of these gentlemen even to change the soiled garment

of a squalling infant when called to see a sick mother. All in all, there seems to be a sad need for "the laying on of the hands," not in the sense of the faith healer but in the sense of giving more personal ministrations to patients.

On the other hand, I have found another relatively small group of physicians who were overenthusiastic about physical therapy and who used these measures in preference to any other therapeutic procedure. Many of this group left me with the impression that they could do little else in the general practice of medicine and reverted to this field of physical therapeutics for a new start. Others seemed to be attracted to apparent lucrative pecuniary gains. However, the majority confined their efforts to that relatively small branch of physical therapy; namely, electrotherapy. Invariably they made such exaggerated claims for the efficacy of their technic in such a wide variety of applications without correlating with recognized medical and surgical procedures, but their methods of reasoning were such as to cause distrust in the sincerity of their arguments. It is this class of physicians who by these loosely founded practices are doing so much to keep the logically minded physician in a quandary as to just how much credit can be given physical therapy when psychology may play so much of a role, especially when actual results are obtained.

Last, but not least, we have to give consideration to that large group of physicians who represent the backbone of the medical profession, the general practitioners. These men are beginning to show more and more interest in the need for that assistance which can be derived from the rational application of physical measures for the relief and cure of the sick. It is very evident that there is a sad lack of knowledge among the majority of these men concerning physical therapy, and they readily admit it.

This lack of knowledge concerning the physical and physiological reactions resulting from the use of our most common physical measures is very unfortunate and little short of deplorable. This common state of affairs has led to many abuses. Principal among these is the method by which many medical men have been led into the purchasing of expensive equipment, particularly electrical apparatus from which marvelous cures had been promised, many nigh unto miraculous. Disappointments in results were prevalent, many of these results should be charged to the application of physical

therapy to undiagnosed pains. All in all, this was simply machine therapy and very little more could have been expected.

Many promises of monetary gains have been made by certain unscrupulous salesmen. A large majority of medical practitioners have been led to believe that little or no training was necessary. All one had to do was to turn on a switch, make a certain setting and then let the machine do its work. No stress and, in many instances, not even a mention was made of the time consumed in giving a treatment and the training necessary to correlate the proper combination of physical agents with recognized medical and surgical procedures. The busy general practitioner with a waiting room full of patients was soon to learn of this predicament. Much of his electrical equipment soon found itself in a corner collecting dust.

In other instances, and oftentimes due to the stress of circumstances, general practitioners have been led into the use of certain measures which invariably were improperly performed. Several of these I would like to stress. First, the promiscuous electrocoagulation of tonsils is and should be frowned upon, because in the majority of instances varying amounts of tonsil still remain in the fossae. It is a measure that has its place particularly on patients who have definite contraindications for tonsillectomy and should be performed by one well informed in the anatomy and pathological histology of the throat. Secondly, the use of negative galvanism and positive copper ionization on hemorrhoids has been terribly misused. It is the well informed man who knows when and when not to use these measures. However, when properly performed these physical agents do ameliorate distressing symptoms of patients who positively refuse surgery and who otherwise would find their way into the clutches of quacks.

On the other hand, let me comment on a very glaring neglect: that is the long convalescing patient. We all desire a large and rapid turnover of patients. Our enthusiasm runs high when we can remove some ailment by surgery and soon have the patient go on his way; but this enthusiasm seems to wane miserably when we have to struggle with the vexing problem of very long and very slow convalescence. Only too often, these patients slip out of our control to hunt for more direct ministrations in other quarters, particularly with chiropractors and osteopaths who are fast reverting to the use of physical therapy. We are even more chagrined when we know of some prominent

fellow physicians resorting to osteopathic care. This problem can be successfully combated only by the intelligent application of physical therapy in the hands of the medical profession.

Now, we have before us the problem of acquiring the necessary knowledge concerning the intelligent application and correlation of physical measures in the practice of medicine. On serious deliberation, it is evident that this problem is a tremendously large and difficult one when all the phases are considered. It is one which we cannot hope to accomplish in the present generation, but we can do much to improve conditions as they now exist.

The Missouri State Medical Association has appointed a special committee on physical therapy. This committee consisting of five members will bear the responsibility of studying the problems of the general practitioner in Missouri regarding the rational use and correlation of physical therapy in general practice. It is the hope that by means of discussions at county and state medical meetings, symposia and an occasional seminar at the medical centers of the state, the general practitioner will obtain first-hand information regarding technic, indications and contraindications of physical measures and then, too, he will have somewhere to turn for advice. This program should go far in supplying the necessary knowledge of the role physical therapy should play in the practice of medicine and thereby help correct the deplorable state of affairs which can be attributed to a sad lack of knowledge of simple physics and physiological reactions so vitally necessary for the rational application of physical therapy.

More and more medical schools in this country as well as abroad are fast realizing the need for instruction in the principles and practice of physical therapy and many of these schools already have inaugurated courses for their medical students. Some of the schools we find heading the list are: Chicago and Northwestern universities in Chicago, Cornell and Columbia in New York, Harvard in Boston, Yale in New Haven, Jefferson, Temple and the University of Pennsylvania at Philadelphia, Washington and St. Louis universities in St. Louis. With such an array of medical institutions interested in the need for the rational use of physical therapy it is very evident that in the future the new crop of physicians should be and undoubtedly will be well grounded in the fundamentals necessary for the rational application and correlation of physi-

cal agents. This type of interest should have a very wholesome effect on future research.

6516 Oakland Avenue.

RUBBER CATHETER RETAINED IN ABDOMINAL CAVITY FOR TWENTY-SIX YEARS

REPORT OF CASE

ROLAND HILL, M.D.

ST. LOUIS

Foreign bodies in the abdominal cavity are by no means extremely rare. Most of them, however, result from sponges and instruments being left in after surgical operations. The case here reported of penetration into the uterine cavity by a catheter with retention for many years in the abdominal cavity is so unusual that it seems worthy of detailed report.

The patient, a well developed white woman, married, aged 54 years, was admitted to the hospital on January 12, 1927. Her chief complaint was constant distress in the lower abdomen, loss of weight and constipation. She had been married for thirty years, had one living child and many miscarriages. The first miscarriage was induced by insertion of a soft rubber catheter into the uterus twenty-six years before. This was supposed to have been lost as it had never been seen from the time it was used. A uterine polyp had been removed by operation six years before. Her menstruation had been irregular for sixteen years but the flow was unusually profuse. Low abdominal distress had been constant.

In August, 1926, all the symptoms increased and the patient became quite ill. She had epigastric distress following intake of any food and it was not relieved by medicine. She lost twenty-six pounds, became weak and very much constipated.

Physical examination revealed a woman of middle age, very anemic and very much run down; weight 140 pounds, temperature, respiration and pulse normal. Blood pressure was 196/165. Skin dry and flabby, tongue coated and showed no redness. Lungs normal; heart had slight systolic murmur at apex. There was general tenderness over abdomen with pitting of right leg. There was considerable purulent vaginal discharge. Uterus was enlarged and seemed distant to the examining hand. Slight tenderness on bimanual examination. Examination by proctoscope showed low grade proctitis. There was no evidence of any growth or ulceration in rectum. Urine was clear and bladder normal except for a mild inflammation of trigone. No signs of perivesicle irritation and no obstruction existed to urethral catheterization. Laboratory findings: white blood cells 8600; red blood cells 4,200,000; hemoglobin 75, polymorphonuclear 69 per cent, lymphocytes 32; red blood cells normal, urine was clear and straw color; 2 per cent albumin, no sugar, 3 plus indican. No acid in stomach. Test meal of 75 cc. was normal. Occult blood negative. Stool examination normal. Roentgen ray, however, showed a full sized catheter doubled up in pelvis. Upon palpation, when the bladder was injected, the catheter was pushed up so that it was in contact with and above the bladder. Gallbladder was negative on roentgen ray examination.

Read at the 78th Annual Meeting of the Missouri State Medical Association, Excelsior Springs, May 6-9, 1935.



Fig. 1. Roentgen ray showing catheter in abdominal cavity.

Operation: February 3, 1927. Low median incision. Omentum adherent to abdominal wall. In this omentum was one end of the catheter. This was traced up and proved to be adherent to the small bowel for three inches. The catheter was removed and also the appendix, and all adhesions separated. Wound closed without drainage.

Following the operation for removal of the catheter from the abdomen we naturally expected complete and permanent recovery. In this, however, we were doomed to disappointment. For two years the patient was completely free from trouble but at the end of that time she began to have further discomfort in the abdomen. This discomfort gradually increased until acute obstruction developed. She went to the hospital in her home town and was operated upon by a local doctor who separated some obstructive bands but only obtained partial relief of symptoms.

In October, 1929, she returned to me and I operated upon her on October 29 and found the greater part of the small intestine involved in one great mass of adhesions. These were carefully separated throughout and the abdomen closed in the usual way. The patient returned to her home with complete relief of her trouble for several months when her symptoms returned.

Her condition became so desperate that she came back in July, 1930. She was losing weight and suffered so much pain and partial obstruction that I felt it imperative to open the abdomen once more. At this operation the condition found was practically the same as that which existed at the time of the second operation. The same operative steps were taken; all ad-

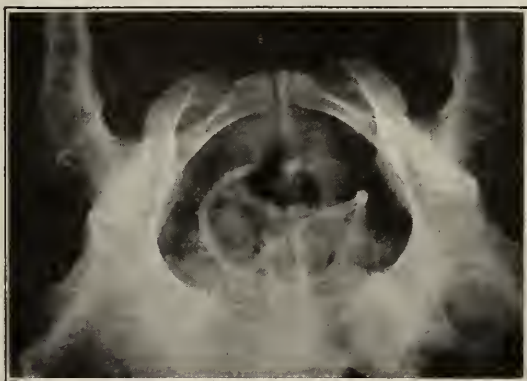


Fig. 2. Catheter as shown by roentgen ray.

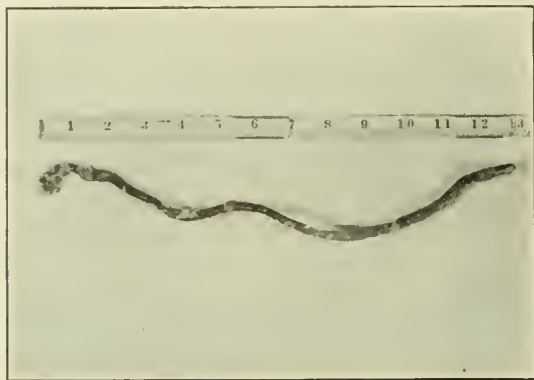


Fig. 3. Catheter after removal from the abdominal cavity.

hesions separated in the hope that recurrent adhesions would not prove obstructive.

A marked period of relief followed but she returned in October, 1931. At this time, her condition was truly deplorable and on October 6 I opened the abdomen once more. This time all adhesions were separated and an area of small bowel about eighteen inches in length that seemed to be the chief offender was resected and a lateral anastomosis was made. After this operation, amniotic fluid was placed in the abdomen before it was closed. The effect was negative.

In May, 1932, she returned again in the same wretched condition. After careful consideration and consultation with some of my colleagues, I reopened the abdomen on May 27, 1932. At this operation, an anastomosis was made between the afferent loop of the small intestine going into the adherent mass and the efferent loop where it left the mass, thus sidetracking about six or eight feet of the small bowel. She had a stormy convalescence for a few months and then gained twenty-seven pounds and had a splendid year.

In 1934, she began to have trouble again and came back to us in February, 1935. She was at this time emaciated and very weak, pain in the lower abdomen was excruciating, the bowels were very much constipated and at times nothing but watery evacuation would occur. On opening the abdomen, I found that some sections of the silent loop were not adherent and the bowel better and evidently functioning. There were some strong bands low down in the abdomen binding the bowel to the abdominal wall. These were separated and the patient began to gain and left the hospital in three weeks.

If she returns again, I am in a quandary as to what to do. However, considering the improved condition of the bowel in the silent area it seems to me that we might possibly be justified in doing away with the anastomosis and restoring the normal channel of the intestine.

218 Lister Building.

TREATMENT OF PULMONARY TUBERCULOSIS BY ULTRAVIOLET RADIATION

John S. Coulter and Howard A. Carter, Chicago (Journal A. M. A., July 20, 1935), found that ultraviolet radiation of varied intensity in doses sufficient to produce a mild erythema and subsequent pigmentation produced no beneficial effects in cases of active pulmonary tuberculosis or in cases following thoracoplasty. In cases of thoracoplasty with delayed wound healing, local ultraviolet irradiation with a carbon arc lamp

increased the growth of healthy granulation tissue and the tendency to epithelization. Near a large city the changing atmospheric conditions introduce obstacles that make the selection of the dosage factors impossible in heliotherapy. The generally listed dangers following ultraviolet irradiation in cases of pulmonary tuberculosis have been exaggerated, provided the dosage of ultraviolet radiation is carefully regulated. In a number of cases there was no suggestion that ultraviolet irradiation had any uniform effect on the red blood cell count, the hemoglobin value or the white blood cell picture.

AIR IN BILE PASSAGES

According to Samuel Candel and William L. Wolfson, Brooklyn (Journal A. M. A., July 20, 1935), biliary fistula into the intestinal canal usually results from the combination of infection and calculi in the biliary passage. Seldom does it develop from a perforating duodenal ulcer. When suppuration of the biliary tracts occurs, adhesions form, and the gallbladder or its ducts may become agglutinated to proximate organs; i. e., duodenum, colon, stomach. As a consequence of constant pressure of calculi and advancing necrosis of the wall of the gallbladder, perforation into an adherent viscus may ensue. Internal biliary fistulas have frequently been associated with the presence of stones. The impaction of a stone in the duodenum or small intestine, complicating the perforation of the gallbladder into the digestive tract, may result in intestinal obstruction. Stones that have perforated into the large bowel rarely produce obstruction unless the stone is enormous or unless conglomerated calculi have formed a large mass. The authors report a case of spontaneous cholecystocolonic fistula in which the colon, the fistula, the small gallbladder, the cystic duct, the dilated common duct and the hepatic ducts were air filled and clearly visualized. Roentgenographic studies demonstrated gas and barium shadows in the biliary passages. Persistent cramps and diarrhea were outstanding and significant symptoms. The diagnosis was made preoperatively and confirmed by operation.

EXPERIENCE WITH ERGOTAMINE TARTRATE IN 120 PATIENTS WITH MIGRAINE

William G. Lennox, Boston, and Theodore J. C. von Storch, Brookline, Mass. (Journal A. M. A., July 20, 1935), treated 120 patients suffering from severe periodic headaches. In addition, they had one or more of the following satellite symptoms: hemicrania, nausea or vomiting, visual disturbances, vasomotor disturbance and malaise. They failed to obtain relief from other drugs or treatment, and each gave a history of migraine in other members of the family. Twenty-three of the patients were males and ninety-seven females. Of the 109 patients who received ergotamine by intravenous, intramuscular or subcutaneous injection, the result of the first administration was abrupt and complete relief in 90 per cent, slight or temporary relief in 4 per cent, no benefit in 4 per cent and headache made worse in 2 per cent. Of the eleven patients who received medication only by mouth, the first trial was followed by relief in 82 per cent, while 18 per cent were made worse. Of the whole group of 120 patients, 107 experienced abrupt and complete cessation of the headache with the initial use of ergotamine. Nineteen patients have used ergotamine for more than a year, and all but one have obtained relief on each of the repeated occasions in which ergotamine has been used.

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AUGUST, 1935

EDITORIALS

PHYSICAL THERAPISTS TO CON- VENE IN KANSAS CITY

The American Congress of Physical Therapy will hold two sessions in Kansas City, September 5 to 7 and September 9 to 12. The first session will be an instruction class covering the field of physical therapy. The second event will be the fourteenth annual scientific and clinical convention of the organization.

The first session will be of special interest to Missouri members because physical therapy as an activity of the Association is quite recent. At the Excelsior Springs Session a Committee on Physical Therapy was appointed composed of Dr. A. J. Kotkis, St. Louis, Chairman; Dr. C. H. Neilson, St. Louis; Dr. Wm. J. Stewart, Columbia; Dr. T. H. Ewerhardt, St. Louis, and Dr. M. W. Pickard, Kansas City. It is the hope of this committee that many members of our Association will attend the meeting at Kansas City as more will be gained in the few days at this session than could be obtained otherwise in a much longer time.

Both of the meetings will be held at the Hotel Kansas Citian, Kansas City, Missouri, and every detail has been arranged to give the busy practitioner and technician a full week of intensive study in physical therapy. There will be symposia on arthritis, fever therapy and short wave, among other subjects, and clinical group conferences in the various specialties. A joint session will be held Tuesday evening, September 10, with the Jackson County Medical Society. A

representative group of teachers and clinicians will take part in the program. Dr. Franz Nagelschmidt, formerly of Berlin and now of London, will participate in the course and in the program of the convention.

Participation in the activities of the organization is limited to members of the American Medical Association. A registration fee of \$20 for nonmembers of the organization and \$15 for members will be charged at the Kansas City session. Preliminary programs and information of the meeting may be obtained by addressing the American Congress on Physical Therapy, 30 North Michigan Avenue, Chicago.

WASHINGTON, D. C., PLAN OF MEDICAL CARE DISCUSSED

A plan in operation in Washington, D. C., under which medical care is furnished the low salary group and the physician assured of his fee was described by Mr. Ross Garrett, Washington, D. C., coordinator for the plan, before the St. Louis Medical Society on June 27. Mr. Garrett was brought to St. Louis by a subcommittee of the code and contract board of the St. Louis Medical Society. This committee of which Dr. Archer O'Reilly, St. Louis, is chairman, was formed for the study of such plans of medical care. The committee is responsible to the code and contract board of which Dr. Carl A. Vohs, St. Louis, is chairman. Dr. Vohs is also chairman of the subsidiary Committee on Medical Economics of the State Medical Association of which Dr. O'Reilly is also a member and Mr. E. H. Bartelsmeyer, Assistant Secretary, is an ex officio member.

The organization in Washington, D. C., called the Medical-Dental Service Bureau, has been in existence for some time and has proved itself gratifyingly successful, according to Mr. Garrett. The basis of the plan is the budgeting of the patients' finances to allow him as easy and as quick payment as possible. The physician or dentist sets his fee based upon a financial and social picture of the patient's circumstances furnished by the bureau and the bureau plans with the patient, makes the collections and remits to the practitioner and to the hospitals.

The greatest consideration for the success of the plan, according to Mr. Garrett, is the full cooperation of the physicians and dentists, hospitals and all lay and semi-scientific organizations dealing with the health of the private citizen. The referring of all patients in this group to the bureau by the physician

when the patient comes to him, or by the organizations when the patient appeals to them, has been fundamental in the operation of the bureau.

Ten per cent of the collected fee is retained by the bureau and this has carried the expense and has allowed the establishment of a sinking fund which will be used to cover all bad accounts. All publicity used by the bureau emphasizes the physician's interest in the welfare of the patient and the plan itself upholds the individual contact of patient and physician.

Mr. Garrett surveyed the possibilities in the St. Louis territory and expressed himself as believing a plan similar to the one operating in Washington, D. C., could be successfully conducted in St. Louis.

BRINKLEY DECISION UPHELD BY FEDERAL COURT

It is particularly gratifying to physicians of Kansas, but also a satisfaction to all physicians, that the federal district court upheld the Kansas Board of Medical Registration and Examination in its revocation of J. R. Brinkley's license to practice medicine. The board took its action several years ago and since that time Brinkley has operated, as the *Journal* of the Kansas Medical Society states, "on one or another of the banks of the Rio Grande."

The judge in his decision said, "Brinkley made the practice of medicine a business, adopting the usual present day methods of propaganda by use of the mail and radio for its development and extension. These methods are not only notoriously in conflict with the ethics of the profession, but in my opinion, in conflict with the best interests of the public, and irrespective of the value of the operations performed by him at the hospital for the amelioration of the prostate gland, or the benefits to individuals using prescriptions given them through radio broadcasts, the possibilities of injury to the general public resulting from such methods are so apparent that its mere statement is sufficient."

PHYSICIAN-PATIENT RELATIONSHIP RECOGNIZED BY NEW YORK LEGISLATURE

The physician-patient relationship, a vital consideration lacking in so many plans of medical care today, has been recognized by

the legislature of New York State. For the first time in the history of workmen's compensation insurance in New York State, a matter of twenty-four years, injured employees are to have the opportunity of having the physician of their choice. This enables the workman to obtain his own family physician to attend him if he is hurt. The new amendments to the law, which went into effect July 1, include this feature with a number of others designed to improve conditions.

Physicians who are to practice compensation medicine must be registered with their county medical societies and approved by the industrial commissioner. The qualifications of each physician are approved by the societies and the commission may remove his name from the list of physicians authorized to practice this type of medicine if a doctor "exceeds the limits of his qualifications." Both the physicians of the state and the insurance companies are cooperating fully in the detailed plans to make it operate smoothly.

Of the new law Dr. Frederic E. Sondern, president of the Medical Society of the State of New York, says: "We expect that most of the serious abuses which have grown up in this type of medical care in the past will be effectively eliminated by the new law which is aimed to make the patient's well-being the first consideration."

MIDWEST POLIO ASSOCIATION OF ST. LOUIS

In February of 1934 twenty people in St. Louis who had suffered from the effects of poliomyelitis formed a group called the Polio Swimming Club. This group began exercising in a swimming pool which was devoted to their exclusive use once a week and were assisted by swimming instructors under the direction of physical therapists. A physician's recommendation was required for admittance.

The club proved so beneficial that in January of this year it was incorporated under the name of the Midwest Polio Association of St. Louis. It is the purpose of the organization to make possible beneficial exercise and muscle reeducation under the direction of trained physical therapists. The association hopes to raise funds to build an indoor pool and to install underwater exercising tables, walking ramps and other equipment of the type in use at Warm Springs.

NEWS NOTES

Dr. M. F. Arbuckle, St. Louis, has announced that Dr. A. C. Stutsman, St. Louis, formerly at Barnes Hospital, is now associated with him in practice.

Dr. Wm. G. Patton, St. Louis, who has been in California for several months has returned to St. Louis and resumed practice with offices in the Missouri Theater Building.

Dr. Quitman U. Newell, St. Louis, was the guest of the Miami County (Indiana) Medical Society, Peru, Indiana, on June 26, and delivered an address on "The Cancer Problem in Gynecology."

Dr. M. P. Ravenel, Columbia, was elected an honorary member of the board of directors of the National Tuberculosis Association at its convention at Saranac Lake, New York, recently, and Dr. W. J. Bryan, Mount Vernon, was elected an active member of the board.

Dr. Ralph S. Muckenfuss, St. Louis, has accepted an appointment as associate director of the Municipal Bureau of Laboratories of the New York Health Department. The appointment is temporary pending an open civil service examination. Dr. Muckenfuss has served as assistant professor of medicine at the Washington University School of Medicine since 1929 and in 1931 during the epidemic of encephalitis was in charge of the laboratory where research studies were centralized.

A nation wide study of the nature, causes and results of firework accidents was inaugurated July 5 by the American Museum of Safety, New York, with the cooperation of public health authorities and safety organizations throughout the country. The study will attempt to ascertain how serious a hazard to life, limb and sight fireworks are, which particular items of fireworks are involved in most accidents, what influence if any prohibitory legislation has on the frequency of firework accidents and what are the sources of the fireworks causing accidents. The study will be under the direction of Dr. Leland E. Cofer, New York, former assistant Surgeon General of the United

States Public Health Service and director of industrial hygiene for the State of New York.

Chairmen of the various committees for the American Hospital Association convention which will be held in St. Louis, September 30 to October 3, have been announced by Dr. Louis H. Burlingham, St. Louis, chairman of the general committee on arrangements. The chairmen are Miss E. Muriel Anscombe, superintendent of the Jewish Hospital, committee on music and decorations; E. E. King, superintendent of the Missouri Baptist Hospital, committee on exhibits; H. J. Mohler, superintendent of the Missouri Pacific Hospital, banquet committee; Dr. Ralph L. Thompson, Hospital Commissioner, committee on reception and entertainment, and Alfred H. Wyman, of the Community Council, committee on publicity. All principal sessions will be held in the St. Louis Municipal Auditorium.

OBITUARY

CHARLES F. ROTTER, M.D.

Dr. Charles F. Rotter, St. Louis, was born on January 27, 1861, in Grulich, Austria, a village where Catholics made pilgrimages to the Shrine of Ava Maria.

Educated in the parochial schools and gymnasium of his home town, he went to Vienna to finish his college education. He possessed a special gift as an artist cartoonist with pencil and pen and ink. Not being allowed to follow either this art or the study of medicine he proceeded at the age of 23 years to the United States and settling in St. Louis, he immediately found work for a very modest consideration. Two years later he was married.

He still fostered the ambition of his youth to become a physician and after several years he entered the Marion-Sims Medical College, now part of the St. Louis University School of Medicine. Through untiring efforts and many sacrifices he was able to complete his medical course. He graduated in the year 1896.

On him was conferred that year a special honor due to high grades, an Honorary Diploma which he proudly cherished.

He had at last reached his goal, to serve humanity and toward this end he labored until his death. With him the study and practice of medicine was an absorbing passion the ardor of which neither the incessant and ever increasing demands upon his time nor the growing years could quench. He possessed a very quiet and retiring disposition. Never did he hesitate to visit the sick, rich or poor alike, either by day or in the dead hours of the night.

Never did he say an unkind word of any colleague, patient or friend publicly or at home. Nor did he ever lend an ear to unkind remarks often made to a doctor about another physician. Those patients were always taken to task.

His teachings to his children by whom he was highly

respected and dearly loved for his honesty and loyalty were based on the admonition "Do only the right thing every day and you have no one to fear." After many years of faithful service and arduous labor his health began to fail. In spite of this and his declining years he still administered to the sick and suffering forgetting himself entirely.

Of his work it can be truly said: "Well done, thou good and faithful servant." Although modest of his achievements in life at the time of his death tributes of love and appreciation were reverently bestowed.

He died on October 27, 1934. He is survived by his widow, three sons and two daughters, to whom the members of our medical society extend their deep and heartfelt sympathy in their sorrow and bereavement.—H. W. S. in the *Bulletin* of the St. Louis Medical Society.

THOMAS B. BUTLER, M.D.

Dr. Thomas Bernard Butler, St. Louis, was born at Jacksonville, Illinois, July 5, 1884.

After finishing grade and high school in the city of his birth, he entered Illinois College where he received a Bachelor of Arts Degree in 1907. He attended St. Louis University for four years receiving his degree of Doctor of Medicine in 1911.

After his graduation at St. Louis University he served internships at the Female Hospital, St. Louis City Hospital and at the City Sanitarium.

In 1914 Dr. Butler married Miss Mabel Schmeckebeir. To this union four children were born, two boys and two girls.

Dr. Butler enjoyed a large practice in St. Louis until 1930, when at the age of 46, blindness compelled him to discontinue his professional activities.

During his active life Dr. Butler had two great interests, his family and his profession. In addition to his reputation as a physician, he was well known for his geniality, friendliness, optimism and good humor.

Dr. Butler bore the loss of his eyesight at the forty-seventh year with his usual spirit, always pleasant and cheerful, never complaining.

His death on September 1, 1934, at the age of fifty years, was a distinct loss to his family and to his many friends.

He is survived by his widow and four children.—H. H. K. in the *Bulletin* of the St. Louis Medical Society.

WILLIAM H. PAULEY, M.D.

Dr. William Henry Pauley, St. Louis, son of Frank Charles and Lena Pauley, nee Kaut, was born February 15, 1874, in St. Louis. He had five sisters and one brother.

Dr. Pauley received his primary education in the public schools and Central High School. The following year he entered the Marion-Sims Medical College, graduating on April 2, 1896, and was licensed to practice the same year.

He interned at the City Hospital one year; City Dispensary two years; served on the Medical Staff of the Burlington Railroad at Aurora, Illinois, one year, Brookfield, Missouri, two years; associated with Dr. Heine Marks three years, and then entered the practice of medicine at Easton and Union avenues.

In September, 1905, Dr. Pauley married Miss Emma N. Wagner. One child, a daughter, was born to this marriage.

Sunday "outings," pitching horseshoes, occasional fishing and hunting trips and playing contract bridge

were his pastimes. He was very fond of contract bridge and was an expert at the game.

In the course of his routine duties he was stricken with apoplexy on October 20 and passed away on the following day, aged 60 years, 8 months and 5 days.

His work in the medical school was always outstanding, characterized by diligence and earnestness. Graduating in a large class, he shared the highest honors and awards.

It was during his college years that the speaker learned to know him. As I now recall, he was a tall, handsome lad, dressed immaculately, with a cheery smile and a hearty handshake. And thus he continued on in the after years, faithful to those whom he served, loved and respected by those who knew him 'till the Master of time called him to cease his earthly labor and "join that innumerable caravan which moves to that mysterious realm where each shall take his chamber in the silent halls of 'the great beyond.'" He went from our midst, ingratiated in the hearts of a host of friends, from a happy home life; and as we stand here tonight, at the tomb as it were, in the twilight memories of our departed friend, there comes the thought, the hope, a prayer—"From the voiceless lips of the unreplying dead, there comes no word; but in the hour of death, hope sees a star, and listening love can hear the rustling of a wing."

William Henry Pauley, *Amicus requiescat in pace.*—A. E. M. in the *Bulletin* of the St. Louis Medical Society.

WILLIAM HEWSON MOOK, M.D.

Dr. William Hewson Mook, St. Louis, was born in St. Louis on February 25, 1879. His father, George Jacob Mook, served in the Confederate cavalry as a Major under Price and Marmaduke, and died after a successful business career in 1900. His mother, Mary Ellen Husbands Mook, survives him. Dr. Mook was graduated from Central High School in 1897 and from Beaumont Hospital Medical College in 1900. In competitive examination he won an internship in the City Hospital and in 1901 he was appointed assistant superintendent of St. Louis Quarantine Smallpox Hospital. He held this position for two years and then went to Europe where he devoted himself to a study of dermatology in various European universities and clinics. On his return to America he accepted the position of house physician in the New York Skin and Cancer Hospital. In 1905 he came back to St. Louis and joined with Dr. Martin F. Engman in a partnership in the practice of dermatology, an association which endured until his death.

When it seemed inevitable that the United States would be drawn into the World War, Dr. Mook made preparation to follow in the footsteps of his illustrious father. He volunteered his services to his country and in August, 1917, he was commissioned First Lieutenant in the United States Army and was immediately sent to France. In September, 1917, he was put in charge of the Dermatological Hospital in Paris with the rank of Captain. On November 11, 1918, he was promoted to the rank of Major and on May 2, 1919, was elevated to the rank of Lieutenant-Colonel. As to the character of the service he rendered this country, I am permitted to quote General Pershing. On April 21, 1919, the Commander-in-Chief of the American Expeditionary Forces wrote:

My dear Doctor Mook:

I wish to express my appreciation of the valuable service which you rendered the American Expeditionary Forces. As assistant to the Senior Consultant in Skin and Genito-Urinary Diseases, A. E. F., you displayed professional attainments of

a high order. You were constant in your devotion to your important duties, working tirelessly in the interest of our sick soldiers.

I regret that I was unable to thank you personally before you returned to the United States.

Believe me, Major.

Very sincerely,
(Signed) JOHN J. PERSHING.

Dr. Mook devoted much of his time and talent in transmitting to others the knowledge his singular gifts and his long and arduous studies had secured for himself.

He was at one time connected with the department of dermatology of St. Louis University School of Medicine and at the time of his death and for many years preceding it he was associate clinical professor of dermatology in the Medical Department of Washington University.

He was one of the founders of the Barnard Free Skin and Cancer Hospital and his devotion to this institution he manifested not only by unfailing service to it during his life but by making it the ultimate beneficiary of the estate he left after him.

At the time of his death, in addition to the Barnard Free Skin and Cancer Hospital, Dr. Mook was a member of the staffs of the following: St. Luke's, Barnes, DePaul, Missouri Baptist and Veterans hospitals. He was a member of Nu Sigma Nu Medical Fraternity and of the American Medical Association, Missouri State Medical Association, St. Louis Medical Society, Southern Medical Association, Mississippi Valley Dermatological Association, Chicago Dermatological Society, Medical Society City Hospital Alumni, St. Louis Dermatological Society, National Board of Dermatology and Syphilology and of the American Dermatological Association whose president he was in 1932.

Dr. Mook, alone and in collaboration with others, contributed many papers important to the student of dermatology.

On November 3, 1934, Dr. Mook died of pneumonia in St. Anthony's Hospital and the world of medicine which was enriched when he entered it, was robbed of a brilliancy that approached genius when death beckoned him to eternity.

Dr. Mook was not an ordinary person. Nature had been lavish in her gifts. He had a clear, penetrating mind that produced strong and sound opinions on matters connected with his profession. He had a keen sense of justice that refused to permit him to stoop to mean or petty judgments of the acts of others.

He was a student, not only of the diseases of men, but of men themselves and of all their affairs. He loved his country and life and youth and action. He loved nature in her hills, her forests, and her water courses, and he loved all that lived in them. Thousands knew him as Dr. Mook, the skilled physician, but scores of thousands knew him affectionately as "Bill" and it is as "Bill" that he would have us remember him.

I know no man in our local profession who died better loved by his fellow workers.—R. E. K. in the *Bulletin* of the St. Louis Medical Society.

CHARLES H. POPE, M.D.

First impressions and intuitions are usually good. The first impression of a new acquaintance is ordinarily correct. Dr. Charles H. Pope, St. Louis, was one of the first men I met and learned to know on my arrival in St. Louis to study medicine, and for many years we were thrown together more or less intimately. He was rather of the old school of thought and action, believing that if a person wanted to accomplish anything it was necessary to apply one's self diligently. This special qualification being the one outstanding characteristic of this man, it impressed me as being the mainspring of his whole existence. He never lived in

the past, made splendid use always of the present and had his mind and heart set on the future.

He loved flowers, books and music, and believed, like the poet of his own name, "that the proper study of mankind is man."

We were members of the same anatomical dissecting class, the subject of which he had named and chalked across the side of the table "Oscar Wilde," and remarked during the course of his work that he had always wanted to do something like this to Oscar.

He was a Canadian by birth, born in the year, 1876, and he brought with him to the United States that inherent activity characteristic of a north temperate zone influence. He died November 3, 1934.

He was a progressive constructionist, active and aggressive, and was a man of few words. His estimate of his fellow associates was terse and tolerant. He was a good appraiser of human worth and motive qualities.—G. W. R. in the *Bulletin* of the St. Louis Medical Society.

EMANUEL F. OEHLER, M.D.

Dr. E. F. Oehler, St. Louis, was born in Yorktown, Texas, September 23, 1877, the son of an Evangelical Lutheran minister.

He received his elementary education in the public schools of Texas and Missouri, after which he entered the Pro Seminary College at Elmhurst, Illinois, for the study of theology, it being the wishes of his parents that he become a clergyman. He attended this latter school for two years after which he entered Central Wesleyan College at Warrenton, Missouri, and there continued his theological studies for four years.

He completed his preparation for the ministry in the Eden Theological Seminary at St. Louis. This calling however was never his choice; he therefore abandoned his studies for the ministry and took a position at the Deaconess Hospital where he engaged in nursing for four years.

In 1902 he took up the study of medicine at the Marion-Sims College of Medicine. He graduated in medicine in 1906 and immediately entered into active practice being associated with a very able surgeon. His natural surgical ability prompted him to take up surgery as a specialty, which he followed until his death.

His hospital connections were at the Deaconess Hospital and Missouri Baptist Hospital, he was also physician to the Good Samaritan Home for the Aged. His moral and religious training developed for him a character much to be envied. He was of a sympathetic nature and very conscientious, which qualities made him very dear to his patients and friends.

He died September 7, 1934, a martyr to his work, for his death was caused by a streptococcal infection, due to an injury received while operating on a patient with a similar infection.

He is survived by his widow and a daughter.

His passing from our midst is deeply felt by all that knew him and we cherish his memory.—L. W. G. in the *Bulletin* of the St. Louis Medical Society.

PARATHYROID HORMONE THERAPY

Joseph C. Aub, Boston (*Journal A. M. A.*, July 20, 1935), states that the chief therapeutic value of parathyroid extract is dependent on its influence on the blood levels of calcium and phosphorus. Its major use, therefore, lies in the treatment of acute low calcium tetany. In this condition it may be a life-saving measure. Parathyroid extract may also be chosen for other therapeutic purposes. In these less urgent conditions, its beneficial effect arises from the liberation and the increased excretion of salts derived from bone.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL
FOR 1935

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Ste. Genevieve County Medical Society,
December 12, 1934.

Chariton County Medical Society, Janu-
ary 3, 1935.

Perry County Medical Society, January 4,
1935.

Moniteau County Medical Society, Janu-
ary 10, 1935.

Camden County Medical Society, Febru-
ary 26, 1935.

Schuyler County Medical Society, March
18, 1935.

Lewis County Medical Society, April 2,
1935.

Holt County Medical Society, April 18,
1935.

Pike County Medical Society, May 15,
1935.

Saline County Medical Society, May 21,
1935.

Benton County Medical Society, July 9,
1935.

KANSAS CITY PATHOLOGICAL
SOCIETY

RUPTURE OF LEFT AURICLE

W. A. MYERS, M.D., and C. G. LEITCH, M.D.: A 45 year old male complained five years ago of dyspnea, palpitation, vertigo, liver soreness, weakness, faintness, numbness and edema of the feet. There was at that time a history of hematemesis requiring a blood transfusion some three years before, associated with shock, nausea, vomiting, epigastric pain, constipation and piles. He had had jaundice of unknown origin ten years ago. The physical findings of an irregular pulse, an apical thrill, a diastolic murmur, enlargement of both left and right auricles by percussion and roentgen ray examination, and a blood pressure of 120/75 led to the opinion that he had a long standing, high grade mitral stenosis. Laboratory examinations of the urine and blood, including Wassermann test, were essentially negative.

He improved on digitalis therapy and continued at work as a bookkeeper with constant auricular fibrillation for four years when he developed another severe attack of vomiting blood and at about the same time some difficulty in speech and slight and transient motor weakness of his right arm and leg. By careful supervision, daily use of digitalis and at times alkalies he was able to continue his work until one morning while leaving his home in excellent spirits, he either slipped on the icy steps or fell with a heart attack and expired within a few minutes.

At necropsy, the heart showed a severe degree of mitral stenosis, dilatation of the left auricle and rupture of its thin wall.

Transactions of March 19 and April 16, 1935.

BLOOD CHOLESTEROL AND CHOLESTEROL ESTERS

FREDERICK C. NARR, M.D.: The utilization of the ratio of blood cholesterol to cholesterol esters as a diagnostic aid in certain types of hepatic disease has been reported by Epstein and others. From these reports one gets the impression that the estimation of cholesterol and cholesterol esters has a definite value in differentiating the obstructive jaundices from the jaundice of liver damage and that repeated determinations are of prognostic value.

The amount of cholesterol in the blood of man is held at a fairly constant level by a regulating mechanism, probably the liver. In rabbits the level of the blood cholesterol can be controlled by the cholesterol content of the food. In man there is a slight temporary rise a few hours after a meal, but an adjustment occurs and quickly and apparently a permanent increase of blood cholesterol does not depend upon food. A lowering may occur on a cholesterol poor diet, but the blood cholesterol level does not fall below a certain point. Apparently the human body is to a certain extent independent of the amount of cholesterol in food and if the exogenous source fails, there is an endogenous source. From the above it is obvious that cholesterol can be synthesized by man, but the building stones are unknown. The destruction of cholesterol is unproved but it is believed that cholesterol can be produced from cholesterol esters, splitting them into cholesterol and fatty acids by enzymes in the liver, probably in the reticulo-endothelial cells.

Total cholesterol and cholesterol ester determinations have been performed in the laboratory of Research Hospital in a large variety of clinical conditions. Our experience confirms the reports of Epstein: where there is hepatic damage there is a reduction of total cholesterol and cholesterol esters, the latter to a more marked degree than the free cholesterol. In obstructive jaundice there is an increase in total cholesterol and cholesterol esters. Thus there is a method of clinical value to differentiate, for example, carcinoma of the head of the pancreas from so-called catarrhal jaundice. Likewise, repeated estimations of cholesterol and cholesterol esters in cases of hepatic damage are of prognostic value; falling figures indicate increasing hepatic damage, rising figures hepatic repair.

Our figures, like Epstein's, indicate they are of little value in portal cirrhosis.

HIRSCHSPRUNG'S DISEASE

EMSLEY T. JOHNSON, M.D.: A 17 year old white male complained of abdominal enlargement and crampy epigastric pain of two days duration. He had had similar attacks once or twice a year since childhood. Examination revealed cyanosis of the lips, slightly labored respirations and severe distention of a board-like abdomen. There was a leukocytosis of 25,700 with 80 per cent polys. Other clinical and laboratory findings were negative. The patient's temperature, pulse and respiration were 100, 100 and 24 respectively. He was given repeated enemas with no apparent relief. The death was cardiorespiratory in nature. A congenital megacolon was found at necropsy to be the cause of intestinal obstruction.

Hirschsprung gave the first full description of the disease in 1886. Some 400 cases are now recorded. In 75,000 necropsies in two London hospitals the condition was diagnosed four times. It is nine times more frequent in males. The etiology is unknown. In Patel's 180 cases, 107 were under 15 years of age and 73 were over 15 years. Clinically there is a progres-

sive obstipation, the patient not rarely going weeks or months without defecating. Pathologically the rectum and sigmoid or the entire colon, rarely including the lower ilium, are involved. Instead of the walls being 1/16 they are 1/2 of an inch thick and the lumen enormously distended and filled with dried fecal matter. The normal volume of the colon is about 3½ pints whereas in Hirschsprung's disease it may be 35 pints or more.

LARGE GIANT CELL XANTHOMA OF THE FOOT

FERDINAND C. HELWIG, M.D.: This tumor was removed from the anterior surface of the left foot of a married woman, aged 32. The growth was thought to have started as the result of a bruise twelve years previously, and had grown very slowly until nine months ago when it began to undergo rapid increase in size with accompanying pain and discomfort. It measures 10 by 7 by 6 cm. and presents a roughened nodular surface. On section, the diagnostic feature is the bright yellow color of the irregular lobulated fibrocellular masses. Histologically, it is made up of rather large nests of spindle form fibroblastic appearing cells and round cells, separated by dense hyalinized fibrous tissue bundles. There are also phagocytized hemosiderin pigment, multinucleated giant cells and many large foci of foam cells.

These tumors are not particularly rare. They have been variously alluded to as giant cell tumor, giant cell sarcoma, endothelioma, granulation tissue neoplasm, xanthoma and the like. There are several fascinating theories concerning their histogenesis. One of the most interesting of these associates them with the sesamoid bones. There seems to be a definite tendency for these tumors to occur where sesamoid bones are found, in the hands, feet and in tendon sheaths. Other authors, chiefly Fleissig, are of the opinion that these growths are not true neoplasms but represent a form of granulation tissue associated with local inflammation from trauma.

These xanthomatous tumors usually are small, varying from the size of a pea to an English walnut. They are almost uniformly benign. Six of these tumors seen at St. Luke's Hospital have shown no recurrences after simple local excision.

RUPTURED SYPHILITIC CEREBRAL ANEURYSM

C. G. LEITCH, M.D.: A 38 year old white male became a coroner's case when he suddenly fell over dead at a bridge game. He had suffered some from headaches and slight weakness during the last week but was otherwise apparently in good health. Necropsy revealed a ruptured aneurysm of the middle cerebral artery 2 cm. in diameter.

We may differentiate mainly four types of aneurysm of cerebral arteries. The congenital aneurysm frequently ruptures in young and otherwise healthy individuals. Mycotic or embolic aneurysm is a complication of endocarditis or septicemia in which septic emboli in the vasa vasorum leaves weakened scarred walls. Syphilis of the cerebral arteries with aneurysm formation is less common and has the same histogenesis as the mycotic aneurysms. Arteriosclerosis is the fourth cause of cerebral aneurysm and is as a rule easily recognized by its involvement of other vessels.

MULTIPLE GUMMATA OF THE LIVER

ROBERT KORITSCHNER, M.D.: A demonstrated specimen had multiple gummata in the liver. Gummata especially in the liver very often simulate malignancy as such patients suffer from ascites, jaundice, cachexia and often from fever. Since the Wasser-

mann reaction is frequently negative, the only reliable differential diagnostic procedure is the therapeutic test or biopsy. Only potassium iodide can be used with safety, because arsenicals and heavy metals usually damage the remaining small functioning portion of the liver.

Congenital liver syphilis is in the majority of cases a diffuse fibrosis. It may also appear in the form of miliary gummata, and large gummata are extremely rare.

Acquired syphilis manifests itself most frequently in the appearance of solitary gummata and less often in the formation of very coarse fibrous tissue septa. If healed both forms lead finally to the *hepar lobatum*. However, other diseases of the liver may also be responsible for this formation. Liver gummata in white persons are now rare whereas formerly they were frequent. This is probably the result of the present vigorous and early treatment of the disease.

MULTIPLE GUMMATOUS PERIOSTITIS

CLYDE L. RANDALL, M.D.: This housewife was a rather well nourished, white woman, 47 years old, whose general appearance suggested good health. The day before admission to St. Luke's hospital, her right humerus had broken while she was carrying a floor lamp. Physical examination had revealed a raised, peculiarly firm, rather tender area approximately over the left sternoclavicular joint. One year previously, her left clavicle had been fractured in this location while she was receiving an osteopathic adjustment to her spine. She did not feel that the treatment was unusually rough, and stated that the bone had been very slow in uniting and had never seemed to recover fully. There had been several miscarriages and one baby died at the age of nine days.

Her temperature was 100, pulse rate 114, and respiration normal. In addition to the swelling over the left clavicle, the left knee was also found to be considerably swollen and the patient admitted that it had been quite painful at times. No other evidence of systemic disease was found. Roentgen ray plates of the right humerus showed a pathological fracture at the site of an extensive destructive lesion, with no evidence of bone production. The last dorsal vertebra showed a sclerotic change with some compression of the body. The left clavicle showed a destructive process involving the entire medial half. A similar lesion was found involving the lower end of the diaphysis of the left knee. Other bones were normal. The opinions of several roentgenologists favored malignancy.

Urinalysis and red, white and differential counts were all within normal limits. Both the Wassermann and Kline were positive. A biopsy from the clavicle disclosed a typical gummatous lesion, and although Levaditi stains failed to reveal spirochetes, the patient made a satisfactory recovery on mixed antiluetic treatment.

NEWER AND MODERN METHODS OF TREATMENT OF SYPHILIS*

WALTER CLARK, M.D., New York: A summary of the more recent conclusions concerning the treatment of syphilis in leading clinics of the world comprising a study of 8000 cases is of the greatest importance especially when only the generally recognized facts are given.

1. Avoiding lapse from treatment is particularly important in the primary stages.

2. The time relation of mucocutaneous relapse is 55

*Medical Director of the American Social Hygiene Association.

per cent within the first year and 85 per cent by the end of the second year.

3. In the comparison of treatment in 204 mucocutaneous relapses, 74 per cent occurred in patients having been given less than twenty doses of both arsphenamine and heavy metals; 12 per cent in those given less than twenty doses of arsphenamine and more than twenty doses of heavy metals; 5 per cent in those given more than twenty doses of arsphenamine and less than twenty doses of heavy metals; and 9 per cent in those receiving more than twenty doses of both arsphenamine and heavy metals.

4. There were 45 per cent mucocutaneous relapses in patients receiving 1 to 4 injections of arsphenamine and twenty or more of heavy metals. Only 9 per cent relapsed when given five to nine injections of arsphenamine with twenty or more of heavy metals. Again with less than twenty arsphenamine injections there were 15 per cent relapses and with more than twenty injections there were only 2 per cent relapses (mucocutaneous).

5. The sites of secondary lesions in 2269 patients were: skin 81 per cent, throat 36 per cent, genitalia 20 per cent, central nervous system 10 per cent, scalp 7 per cent, eye 4 per cent and visceral 0.2 per cent.

6. In 1747 patients followed during first two years of their disease, 33 per cent developed abnormal spinal fluids or asymptomatic neurosyphilis.

7. The incidence of asymptomatic neurosyphilis is doubled when treatment is delayed until the late secondary stage when it is 56 per cent. Reliance solely on Wassermann reaction of the spinal fluid is faulty. Increased cell count is of utmost importance.

8. In patients with Wassermann irreversible six months or more 44 per cent of spinal fluids were abnormal. Therefore this failure of the Wassermann to become negative in early syphilis intimates the presence of neurosyphilis.

9. Dark field examinations were positive in 94 per cent of seronegative primary lesions, 91 per cent secondary genital lesions, 86 per cent mouth and throat lesions and 79 per cent cutaneous lesions.

10. Comparative effectiveness of treatment methods based on satisfactory results in patients observed two years or more: Continuous treatment, 79 per cent; intermittent, 65 per cent; irregular, 33 per cent; intensive, 23 per cent. Based on relapse in patients observed six months or more: Continuous, 13 per cent; intermittent, 21 per cent; irregular, 45 per cent; intensive 41 per cent.

11. Comparison of effectiveness of treatment in securing Wassermann reversals in one year: Continuous treatment, 82 per cent; intermittent, 37 per cent; irregular, 5 per cent.

12. Continuous, prolonged mass treatment is the effective strategy yielding optimum results.

13. Roentgen ray showed dilated aorta in 53 per cent of cases having suggestive but not diagnostic signs of cardiovascular syphilis and 7 per cent where there were no signs.

14. A negative spinal fluid in latent syphilis is a practical guaranty against subsequent development of neurosyphilis.

15. The frequency of symptomless infection justifies routine blood tests. There was no history of infection in 35 per cent in early latent syphilis and 63 per cent in the late latent stage.

16. The outcome of pregnancy in untreated latent syphilis is 17 per cent healthy non-syphilitic children and 83 per cent of disastrous outcome. These are wholly preventable with timely adequate treatment.

17. Adequate treatment of the luetic in spite of negative Wassermanns in pregnancy is most important.

18. Continuous treatment is advantageous in latent syphilis.

19. In latent syphilis satisfactory results are best obtained by twenty injections of arsphenamine combined with large amounts of heavy metals, the latter prolonged over a long period of time.

20. The Wassermann fast latent syphilitic is in no special danger because of his persistent positive test.

CALDWELL-LIVINGSTON COUNTY MEDICAL SOCIETY

The Caldwell-Livingston County Medical Society met May 1 at the Livingston County Court House in Chillicothe.

Funds that had been saved by the old Caldwell County Medical Society were turned over to the secretary of the hyphenated Society. Dr. G. S. Dowell, Braymer, moved that the money be used to buy a motion picture projector. The motion was seconded by Dr. H. M. Grace, Chillicothe, and carried. A committee composed of Drs. Coburn Ellis, C. H. Brady and E. M. Dowell, Chillicothe, was selected to investigate the purchase of a motion picture projector.

Dr. Coburn Ellis, Chillicothe, was elected to membership.

Drs. D. M. Dowell, Chillicothe, and C. L. Woolsey, Braymer, were elected as delegates to the Excelsior Springs Session and Drs. H. H. Patterson, Braymer, and C. H. Wilbur, Polo, as alternates.

Dr. George C. Lee, Kansas City, spoke interestingly on "Cardiology."

Dr. Homer A. Beal, Kansas City, discussed "The Pathology of the Larynx."

Dr. F. D. Dorsey, Keokuk, Iowa, spoke on "The Surgery of the Upper Abdomen."

These papers were enlightening and thoroughly enjoyed by the members.

A joint meeting of the Caldwell-Livingston and the Grundy-Daviess county medical societies was proposed for the near future and the presidents of the two societies were instructed to prepare a program for the meeting.

Those present at the meeting were Drs. H. H. Patterson, G. S. Dowell and C. L. Woolsey, Braymer; R. Barney, D. M. Dowell, R. J. Brennan, C. H. Brady, C. H. Ellis, A. Collier and H. M. Grace, Chillicothe, and Dr. E. A. B. Thompson, Breckenridge. Visitors present were Drs. R. V. Thompson, Jamesport; E. A. Ambrose, W. A. Fuson and O. R. Rooks, Trenton, and the guest speakers.

DONALD M. DOWELL, M.D., Secretary.

CAPE GIRARDEAU COUNTY MEDICAL SOCIETY

The Cape Girardeau County Medical Society met at the Chamber of Commerce Building, Cape Girardeau, June 10. Dr. D. I. L. Seabaugh, Jackson, president, was in the chair.

Those present were Drs. B. W. Hays, Rusby Seabaugh, M. A. Estes, Jackson; P. W. Nussbaum, H. V. Ashley, S. Doggett, O. L. Seabaugh, H. L. Cunningham, J. J. Drace, J. H. Cochran, M. H. Shelby, D. H. Hope and C. A. W. Zimmermann, Cape Girardeau.

Dr. C. A. W. Zimmermann, Cape Girardeau, reported on a conversation with a member of the P. T. A. After some discussion and reference to a resolution of May, 1932, Dr. Zimmermann moved that a committee of three be appointed to meet with the P. T. A. and arrange, if possible, for the care of the indigent children.

Dr. H. L. Cunningham, Cape Girardeau, read a

paper entitled, "Comments on Nasal Sinusitis, Tonsils and Tonsillectomies." This was a good paper and brought forth a generous discussion showing that there was no unanimity of opinion, at least on the question that all tonsils should come out.

Owing to the lateness of the hour Dr. O. L. Seabaugh, Cape Girardeau, deferred reading his paper until the next meeting.

C. A. W. ZIMMERMANN, M.D., Secretary.

CARTER-SHANNON COUNTY MEDICAL SOCIETY

The Carter-Shannon County Medical Society met at the Gymnasium in Eminence, June 18.

A lay meeting was held at 2 p. m. and the subject "What Everybody Should Know About Cancer" was presented by Dr. Charles F. Sherwin and Dr. Eugene S. Auer, St. Louis. Dr. T. W. Cotton, Van Buren, discussed some of the phases of cancer and its treatment.

At 8 p. m. the scientific meeting was held for further consideration of the cancer question for the benefit of the members of the Carter-Shannon County Medical Society and out of town physicians.

W. T. EUDY, M.D., Secretary.

CASS COUNTY MEDICAL SOCIETY

The Cass County Medical Society held its quarterly meeting at the office of Dr. M. P. Overholser, Harrisonville, at 7:30 p. m. June 13, Dr. William Beckman, Strasburg, president, in the chair.

Dr. M. P. Overholser moved that members of the Cass County Medical Society continue to make examinations of 4-H Club members. The motion was seconded and carried. Dr. T. W. Adair, Archie, moved that the Society select July 2 from 1 to 5 p. m. for the examinations. Seconded and carried.

Dr. M. P. Overholser, Harrisonville, moved that the Society delegate Dr. T. W. Adair, Archie, to consult with the Auxiliary at a special meeting to be held soon for the purpose of making arrangements for a joint dinner meeting on September 12. Seconded and carried.

Dr. J. S. Triplett, Harrisonville, read a paper on "Some Anatomy and Some Pathology of the Parotid Gland; Acute Suppurative Parotitis: Report of Case."

A round table discussion on reports of cases by members and visitors concluded the program. The program proved to be both interesting and instructive.

The Society was pleased to have the following members of the Bates County Medical Society present and take part in the program: Drs. C. W. Luter and A. G. Wooldridge, Butler, and R. H. Smith, Rich Hill.

J. S. TRIPLETT, M.D., Secretary.

PERRY COUNTY MEDICAL SOCIETY

The Perry County Medical Society was called to order by the president, Dr. O. A. Carron, Perryville, at 8:30 p. m. at the office of Dr. G. A. Blaylock, Perryville, June 12.

A letter was read from the Missouri State Crippled Children's Service at Columbia in regard to available hospitalization and treatment for every indigent crippled child.

A letter was read from State Senator George A. Rozier in reply to the Society's letter, promising his full support of the medical profession in the Legislature.

Dr. O. A. Carron, Perryville, presented the idea of organizing a Perryville Doctor's Credit Association to aid in eliminating the evil of unreliable patients im-

posing on the medical profession. The matter was generally discussed and it was decided that if all the local physicians would back the proposition it would be definitely acted upon at the next meeting.

There was a general discussion of the practice of the local druggists refilling prescriptions which causes unlimited hardships on both the patients and the physicians. It was suggested that a resolution be drawn and acted upon at the next meeting.

The secretary reported the collection of dues from 100 per cent of the members.

The next meeting will be held at the office of Dr. Jerome J. Bredall, Perryville, at 8:15 p. m., September 11.

JEROME J. BREDALL, M.D., Secretary.

RAY COUNTY MEDICAL SOCIETY

The Ray County Medical Society met in the office of Dr. O. S. Pate, Orrick, June 18.

Dr. Robert Sheetz, Orrick, presented a paper on "The History and Diagnosis of Carcinoma of the Pancreas."

Dr. O. S. Pate, Orrick, presented a pathological specimen illustrating Dr. Sheetz' paper.

Dr. G. W. Gaines, Richmond, presented a paper on "Nervous Indigestion."

Both papers were thoroughly discussed.

Members present were Dr. Robert Sheetz and Dr. O. S. Pate, Orrick; Dr. Carl H. Reed, Hardin; Dr. I. E. Goldberg, Polo; Dr. L. D. Greene, Dr. H. M. Griffith and Dr. G. W. Gaines, Richmond.

G. W. GAINES, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

14th Annual Meeting, Kansas City, 1936

President, Mrs. Rogers N. Herbert, Nashville, Tennessee.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

12th Annual Meeting, Columbia, 1936

President, Mrs. M. Pinson Neal, Columbia.

President-Elect, Mrs. W. C. G. Kirchner, St. Louis.

Adviser, Dr. J. F. Harrison, Mexico.

THE WOMAN'S AUXILIARY IN 1934-1935

The Woman's Auxiliary to the Missouri State Medical Association followed closely the aims and plans of the National Auxiliary in 1934-1935. This was done the more easily because among the national chairmen were two Missouri women, Mrs. A. B. McGlothlan, St. Joseph, program chairman, and Mrs. David S. Long, Harrisonville, chairman of public relations, who were a constant inspiration and help. Also the state president, the president-elect, the first vice president, the two members of the national board and several others attended the national meeting in Cleveland.

Under the direction of the press and publicity chairman, Mrs. M. P. Overholser, Harrisonville, the Missouri Auxiliary has published a *Quarterly Bulletin* which has served as an excellent medium by which officers and chairmen could make known their plans. It also contained items about the auxiliary members and

their families thereby creating a feeling of closer friendship. Through the kindness of Dr. E. J. Goodwin, Editor of THE JOURNAL, the Auxiliary was given each month a page in THE JOURNAL. The press and publicity chairman sent publicity about the Auxiliary to the metropolitan papers and kept a voluminous scrapbook of auxiliary activities.

The Missouri Auxiliary sponsored its third annual essay contest for pupils in the senior and junior high schools in the state. The subject, "The Doctor's Contribution to Progress" called for individuality, some research and much work. Three hundred thirty-eight essays were submitted. This was a smaller number than were entered in the contest last year but the quality was infinitely higher. Thirty dollars was given in prizes. An unexpected but gratifying by-product of the contest was the number of books on health added to the school libraries.

Almost every auxiliary had a public relations meeting and many auxiliaries had two. Subjects were presented by physicians who were most gracious in their cooperation. Some of the subjects were "The Prevention of Blindness," "Cancer," "Fifty Years of Medical Progress," "Scarlet Fever," "Tuberculosis" and "Infantile Paralysis." Probably the largest number heard Dr. W. W. Bauer, Chicago, speak on "Our First Problem in Health Education," at a meeting sponsored by the Buchanan County Auxiliary.

The Missouri Auxiliary has no state philanthropic project but almost every county auxiliary had its own philanthropy which included such things as sewing for the poor, gifts to orphanages, sending toys and gifts to hospitals, helping with baby clinics and many other things. One auxiliary sent a girl to camp for a week in memory of a deceased member.

Missouri obtained 393 subscriptions to *Hygeia*. The largest number, 161, was sent by Buchanan County.

Last year the Missouri Auxiliary had a paid membership of 726; this year the membership is 785. The largest gain was made by Jackson County under the leadership of Mrs. Herbert S. Valentine, Kansas City; the number was sixty-seven. One auxiliary disbanded but a new auxiliary was organized in Callaway County with fourteen members making twenty-two county auxiliaries. They are Boone, Buchanan, Callaway, Cape Girardeau, Cass, Clay, Cole, Gentry, Greene, Grundy, Jackson, Johnson, Jasper, Lafayette, Linn, Caldwell-Livingston, Miller, Saline, St. Louis City, St. Louis County, Vernon-Cedar and the 26th District which embraces Crawford, Dent, Phelps, Laclede and Pulaski counties.

The Auxiliary adopted the columnar method of book-keeping for the state treasurer's accounts; and a filing case with folders instead of a scrapbook for the state archives. However, many of the auxiliaries kept scrapbooks.

More than half of the auxiliaries had yearbooks and the high quality of the programs was evident. There were many papers on local problems and book reviews such as "The Doctor in History" by Haggard, or books of fiction which had doctors as chief characters.

The Auxiliary aided the medical societies in honoring the doctors, especially those that had practiced medicine for a half century.

Outstanding in every auxiliary meeting is the spirit of friendliness among the members. Teas, picnics, luncheons and other social gatherings have helped members to know each other. There have been many courtesies exchanged between women in nearby auxiliaries.

The year's work closed with a splendid convention in Excelsior Springs with 125 in attendance. At this meeting honored guests and speakers were the national

president, Mrs. Robert W. Tomlinson, Wilmington, Delaware; Mrs. C. S. Red, Houston, Texas, the founder of the organization; and Dr. W. W. Bauer, Chicago, who spoke on "Centuries of Progress in Medicine." In everything the Missouri Auxiliary attempted the women had the encouragement, help and appreciation of the doctors.

BOOK REVIEWS

OBSERVATIONS OF A GENERAL PRACTITIONER. By William N. Macartney, M.D., Boston: Richard G. Badger, Publisher, The Gorham Press. 1935.

This book covers the observations of a general practitioner briefly and clearly affording a comprehensive survey within a compact space as a camera condenses a landscape. The author has disregarded controversial questions and theories but has indicated what seems to be the most important issues. Embodied in the book are many good and useful formulas ready for use, the result of careful and discriminating practice. Throughout the book is found dependable information in an intimate style and pleasing humor covering a wide range of subjects in a very interesting manner. A. C. F. G.

TREATMENT BY DIET. By Clifford J. Barborka, B.S., M.S., M.D., D.Sc., F.A.C.P., Department of Medicine, Northwestern University Medical School, Chicago; formerly Consulting Physician, the Mayo Clinic. Illustrated. Philadelphia: J. B. Lippincott Company. 1934. Price \$5.00.

In this text the author displays a wide familiarity with the important subject of diet as a means of keeping well and in the treatment of disease. There is an excellent summation of what is generally known and a freshness in the presentation of the newer knowledge and conceptions of progress in this field. There are presented typical diet lists made to apply to various illnesses in varying stages of severity. The author is to be congratulated on the brevity of certain discussions and the comprehensiveness of others, of which more is known. He deals well with the use of ketogenic diet in the treatment of epilepsy, migraine, asthma, chronic urinary tract infections. In like manner he discusses the value of diet in the care of dental caries, diabetes mellitus, the various lesions of the kidneys, gastrointestinal lesions and anemias. The book is admirably adaptable as a text and reference book, both in schools and hospitals. W. A. M.

DIABETES MELLITUS AND OBESITY. By Garfield G. Duncan, M.D., C.M. (McG.), Associate in Medicine in the Jefferson Medical College, Philadelphia, et al. With an introduction by Thomas McCrae, M.D., Professor of Medicine in the Jefferson Medical College, et al. Illustrated. Philadelphia: Lea & Febiger. 1935. Price \$2.75.

Your reviewer has always found much edification and comfort in reading the small individual volume monographs in medicine after being wearied by the encyclopedic range of the systems put out by many authors and revised by editors who try to reconcile the conflicting views of the various writers. The book before us is one of that type. It should be a welcome addition to the library of the family physician who has to be responsible for the direction of the treatment of patients with the two disorders, diabetes and obesity.

One minor criticism might be uttered, and that is

that the chemistry of the blood is expressed in percentages rather than in milligrams per 100 cc. of blood, as is more generally the custom. Again one might criticize the giving out of the percentages of sugar as estimated by the Benedict method, rather than having them estimated by the Folin-Wu method, which is, at least in the middle west, more generally used. These two points are not of great importance, but they necessitate the translation of the figures given in the book into those given in other books and periodicals used in this part of the country before they become comparable.

Your reviewer prefers to use for the sugar tolerance test, 1.5 grams of glucose to the kilogram of body weight of the patient. Dr. Duncan uses 100 grams without reference to the weight of the patient.

In the part of the book devoted to obesity, your reviewer would have appreciated a more thorough discussion of what constitutes obesity and how to determine an ideal weight for a given individual. The tables given are only those reproduced from insurance manuals and similar publications. For after all, the real problem confronting the physician is to determine whether a patient is really overweight or not, and if he thinks she is overweight, to what standard he should try to reduce her.

To reduce patients requires a large amount of reference data as to the composition of foods. It would have made Dr. Duncan's brochure of much greater value had he made a larger amount of this information available.

But, as noted above, it is a pleasure to read the opinions of a man who has had a good deal of experience with a particular subject and has definite notions as to what should be done. The reader may disagree with him in many details, but nevertheless he will be helped by the perusal of this volume. G. H. H.

BODY MECHANICS IN THE STUDY AND TREATMENT OF DISEASE. By Joel E. Goldthwait, M.D., LL.D., Member of Board of Consultants, Massachusetts General Hospital, etc., Lloyd T. Brown, M.D., Loring T. Swaim, M.D., and John G. Kuhns, M.D. Ninety-nine illustrations. Philadelphia: J. B. Lippincott Company. 1934. Price \$4.00.

This very interesting, stimulating and suggestive book places before the medical profession the results of years of careful study of the effect of posture and body mechanics on health. The observations made by Goldthwait and his coworkers are not based upon the study of a few patients but upon a careful analysis of a voluminous material and the opinions they express carry an authority which must be recognized. The facts presented are basic, the reasoning from these facts is in the main logical and the conclusions arrived at sound. To appreciate properly the material presented and to gain the full measure of information afforded necessitates a careful reading of the book from the preface to the end; no brief review could give an adequate idea of the real wisdom it contains.

The work deals with the chronic patient and emphasizes the truths which are wellknown: (1) that there is a distinct lack of interest in the chronic patient on the part of the profession as a whole, and (2) that the conventional methods of examination and treatment in the chronic case are distinctly inadequate. The authors emphasize the fact that one of the basic principles in the study or teaching of medicine has always been proper foundation in anatomy but with very few exceptions this is still being taught on the basis of one human type to which all must conform. Their study shows that

practically none of the cases of chronic disease investigated by them were of the so-called normal anatomic structure; all showed variations in type and these variations from the normal were of such a character as to interfere with sound body mechanics and through the faulty mechanics produced the improper functioning or physiology not only of the bones and joints but the chest and the abdominal and pelvic viscera as well. The part which such interference with function plays in predisposing the individual to chronic disease and its effect on the course and progress of chronic disease are discussed. The text describes the various abnormal body types and points out the effect which each has on the mechanics and functioning of the chest, abdominal and pelvic viscera, the circulatory system, ductless glands, etc. The general principles outlined are then applied to the management of the specific condition, such as backache, arthritis, diseases of the abdominal viscera, the circulatory system and the nervous system. There is an excellent chapter on treatment and another on muscle reeducation in the correction of postural defects. The last quarter of the book is devoted to illustrative cases showing the results obtained by the treatment advocated.

Isaac Disraeli said: "To think and to feel constitute the two grand divisions of genii; the men of reasoning and the men of imagination." This treatise is just such a combination of reasoning and imagination; the result has been a work which deserves careful consideration by every member of the profession whether he be general practitioner, internist or specialist; each will find much of practical value within its pages.

F. D. D.

PROCEEDINGS OF CONFERENCE CONCERNING EFFECTS OF DUSTS UPON THE RESPIRATORY SYSTEM. By the Industrial Commission of Wisconsin.

This is a book of 212 pages, giving the proceedings of the Industrial Commission of Wisconsin in its conference concerning the effects of dusts upon the respiratory system held at the Medinah Athletic Club in Chicago, November 16 and 17, 1932.

The commission had invited Drs. Leroy Hugh Gardner, H. S. Willis, W. Irving Clark, and Albert E. Russell to discuss the dust problem with them. They were assisted by Mr. Donald E. Cummings of Saranac Lake and J. J. Bloomfield, Sanitary Engineer in the office of Industrial Hygiene and Sanitation in United States Public Health.

The discussion treated various types of pneumoconiosis with especial emphasis upon silicosis, the anatomy, physiology and pathology of the respiratory system, the pathology of silicosis, its symptomatology, diagnosis and treatment are given at length. There is also a rather lengthy discussion upon dust concentration, dust content, floor dust, animal experimentation, dust supplements and numerous cases reported dealing with dust exposure.

Anyone desiring a rather comprehensive view of silicosis as it was held at that time will be amply repaid for reading this rather interesting book. J. C. L.

THE CRIPPLED AND DISABLED. Rehabilitation of the Physically Handicapped in the United States. By Henry H. Kessler. New York: Morningside Heights, Columbia University Press. 1935. Price \$4.00.

"In these troublesome times of abrupt social change, of serious economic and political maladjustment, when some national governments are taking on even revo-

lutionary aspects, when unemployment is so widespread, it is peculiarly appropriate to call attention to the problem of the disabled and to advance their claims for recognition, and their need for a more definite economic and social status than they have had in the past."

This, the opening paragraph of the author's preface, states in brief his reasons for writing the book. The contents consist of 7 parts and 3 appendices with 17 tables of statistics, etc. Part I is an introduction defining disabled, then takes up the social attitude, ancient and modern, toward them, going on to discuss the general social standpoint and the individual one and takes up the causes of disability and the costs. Part II takes up the problem of the crippled child, its extent, classification, needs, in the way of discovery, diagnosis, medical care and education including vocational training and guidance, followed by employment. The facilities for the care of the crippled child in the different countries, in America and Europe, are given, both governmental and otherwise. Part III treats of the industrially disabled, the types of injuries, the methods of care, reeducation and reemployment; how the needs of this group are met by way of pensions, etc., the legislative measures in effect in the various states of the Union along with citation of cases and court decisions showing the methods of compensation and rehabilitation. These same problems as found in the different countries of Europe are also given and the attempts at their solution. Part IV is a discussion of the war disabled, both in America and Europe, with quotations from the laws in each country and tables showing the amounts of money expended and the numbers receiving help. Part V is given over to a discussion of the chronically disabled as a result of disease, non-industrial accidents, old age, their needs in the way of sheltered employment, pensions, etc., and how these needs are met throughout the world. In Part VI is found treatment of blind, deaf, deaf mutes, their needs in education, both ordinary and higher and provisions made for it in many of our states and abroad. Part VII is a summary of all the problems previously mentioned with a discussion of each one separately. Appendix I gives the compensation provisions for second major injuries in those states not having second injury funds. Appendix II is an alphabetical summary by states of vocational rehabilitation legislation. Appendix III is an index of laws passed in all the states since 1900 providing for education of the blind. The author has spent much time in compiling all the statistics and tables. There are many footnotes containing references to the time of enactment of laws and where they may be found, not only in the United States but in foreign countries. This book is very much worth while for doctors doing industrial work and for many lawyers but would perhaps not be of as much interest to the general practitioner. There are, however, misspelled names, with misstatements and inaccuracies in references.

C. A. S.

STAMMERING AND ALLIED DISORDERS. By C. S. Blue-
mel, M.A., M.D., F.A.C.P., M.R.C.S. (Eng.).
New York: The Macmillan Company. 1935. Price
\$2.00.

In the words of the author, this book presents an "investigation of stammering from the point of view of psychology and neurophysiology, the basis of the study being the conditioned reflex and inhibition." The entire second chapter is devoted to a thorough yet clear and simple exposition of the conditioned reflex, with numerous illustrations from Pavlov's experiments. The author traces the development of language and

speech, stressing the thought that speech is a conditional reflex. A consideration of the nature of inhibition follows.

At its onset, stammering is considered by Dr. Blue-
mel to be a conflict between the two physiological
processes of conditioned response and partial inhibi-
tion. Later, the period of "secondary stammering" sets
in, consisting "principally in associative inhibition,
which results from negative conditioning to words, let-
ters, persons and situations." The author believes there
is apparently an inhibitory type of person with predis-
position to inhibition of conditioned reflexes.

Five chapters are devoted to a consideration of
various other theories of stammering, always conclud-
ing however with the importance of the concept of in-
hibition. The final chapter (18 of the 169 pages in the
book) is given over to the treatment of stammering.
Vocal and articulative exercises are considered to be
useless. Tranquillization is the first of the author's
cardinal principles of treatment. Speaking or reading
in unison with the patient is used to reinforce the con-
ditioned reflex of speech. Later, favorable situations
are merged into unfavorable situations; this, the author
calls "unconditioning." Finally, an effort is made to
"positively condition" the patient to strangers.

A list of 54 references is given at the end of the
volume.

R. B.

FOOD FOR THE DIABETIC. By Mary Pascoe Huddleson,
Editor, Journal American Dietetic Association;
formerly Consulting Dietitian. With an introduction
by William S. McCann, Dewey Professor of Medicine,
University of Rochester, School of Medicine and
Dentistry. Third revised edition. New York: The
Macmillan Company. 1934. Price \$1.50.

Another nice little book for the diabetic, meticulous
in gram delineation.

B. Y. G.

SURGICAL DISEASES OF THE CHEST. By Evarts A.
Graham, A.B., M.D., F.A.C.S., Professor of Sur-
gery, Washington University School of Medicine,
St. Louis, et al; Jacob Jesse Singer, M.D., F.A.C.P.,
Associate Professor of Clinical Medicine, Washing-
ton University School of Medicine, St. Louis, et al,
and Harry C. Ballou, M.D., C.M., F.A.C.S., formerly
Assistant Professor of Surgery, Washington Uni-
versity School of Medicine, St. Louis, et al. Illustrated
with 637 engravings. Philadelphia: Lea & Febiger.
1935. Price \$15.00.

This is a monumental work on diagnosis and treat-
ment of surgical diseases of the chest. It should be of
interest to the internist, surgeon, research worker and
student. The general arrangement of chapters is
anatomical and orderly. An extensive bibliography
follows each chapter for further reference. A com-
plete index facilitates subject reference.

The opening chapters deal with physiological con-
siderations of importance to the thoracic surgeon, endo-
tracheal and endopharyngeal nitrous oxide and oxygen
anesthesia, and postoperative pulmonary complications.
It is commendable to note the correlation of the clinical
and laboratory findings in arriving at the diagnosis
and method of treatment. The authors have inserted
many engravings of photographs, drawings and roent-
genographs to illustrate methods, important findings
and results. Brief case reports are inserted when use-
ful and necessary. Mechanical procedures and opaque
media in diagnosis and treatment are described.

Particular attention to surgical indications and con-
traindications are described but not burdened with de-

scriptive surgical technic, except where new procedures have been adopted. Special attention is called to the chapters on bronchiectasis and carcinoma of the lung. The surgical procedures are described with reports.

The book represents a vast amount of work on useful material with many original contributions by the authors.
P. C. S.

SURGICAL PATHOLOGY OF THE PERITONEUM. By Arthur E. Hertzler, M.D., Surgeon to the Agnes Hertzler Memorial Hospital, Halstead, Kansas; Professor of Surgery, University of Kansas. 201 illustrations. Philadelphia, Montreal and London: J. B. Lippincott Company. 1935.

In his sixth monograph on surgical pathology Dr. Hertzler has condensed a fund of information which is a pleasure to review. Although everyone is already quite familiar with his two volume masterpiece on the peritoneum, published in 1919, the present book adds so much new and worth while material that no one should be without this companion volume. Dr. Hertzler's easy flowing style and keen humor and his piercing evaluation of many old, shopworn, pathologic myths are outstanding features of this monograph. Probably no one in the world has given the peritoneum so much genuinely intelligent study as has Dr. Hertzler, a study that has ranged through the entire gamut of methods of attacking the problems which must be considered. Long hours in the anatomical amphitheater, patient and ingenious morphologic studies, innumerable animal experimentations and nearly forty years of close observation and intelligent deduction of literally thousands of human beings suffering with diseases affecting the peritoneum, to say nothing of an exhaustive survey of the whole literature, serve to represent some of the work done by Dr. Hertzler in the preparation of this book. It is impossible and quite useless to select any particular feature or features as outstanding in this latest monograph. All that the reviewer can say is "there are 292 pages of such features."
F. C. H.

ECONOMIC PROBLEMS OF MEDICINE. By A. C. Christie, M.S., M.D., Professor of Clinical Radiology, Georgetown University Medical School; President, Fifth International Congress of Radiology; Formerly President of the Medical Society of the District of Columbia, The American Roentgen Ray Society, The American College of Radiology and Member of the Committee on the Costs of Medical Care. New York: The Macmillan Company. 1935. Price \$2.00.

This is a concise and excellent treatise on the fundamental, ethical and practical principles of the economic phase of medicine. The intricate and infinite field of medical economics is presented in a well organized, clearly defined and unbiased manner by a well informed thinker on the subject. It is presented by a mature mind, deeply concerned in the problem from the viewpoint of one who has lived and can best understand the differences between the profession of medicine and the other professions or vocations, the private practitioner.

The chapters on "Medical Ethics," "Economic Aspects of Medical Education," and "Private Practice of Medicine," deserve the consideration of students contemplating the practice of medicine as a life work. Interns and young practitioners should find this pioneer book in medical economics well worth the nominal cost. It will give them much food for thought and much valuable practical information.

Attention of those concerned in medical activities is called to chapters on "New Methods of Medical Care,"

and "Solution to the Problems of Medical Care," in view of the vital importance of these subjects at the present time. The vast field covered and the multitude of facts presented in this unique work are amazing. At all times the welfare of the public is uppermost. Dr. Christie emphasizes that the best medical care for the public can be most adequately obtained only when it is fostered, administered and controlled by organized medicine operating under those sacred and traditional ethical principles and policies which have governed medical activities through the ages. Social, political and commercial agencies may aid but should not enter into medical activities for profit which may accrue to their respective agencies.

The health and lives of the American public can best be served, maintained and prolonged under the ethical code of and control by organized medicine.

Dr. Christie and the publisher are to be congratulated for this most excellent and timely work. Every one interested in medical problems, the public, philanthropists, charity institutions, social agencies, statesmen, nurses, hospital administrators, the legal profession, teachers, practitioners and students of medicine would profit much by the knowledge contained in this excellent book on economic problems of medicine. The nominal cost makes it available to all.
M. J. B.

THE 1934 YEAR BOOK OF OBSTETRICS AND GYNECOLOGY. Obstetrics edited by Joseph B. DeLee, A.M., M.D., Professor of Obstetrics, University of Chicago Medical School, et al. Gynecology edited by J. P. Greenhill, B.S., M.D., F.A.C.S., Associate Professor of Gynecology, Loyola University Medical School, et al. Second edition. Chicago: The Year Book Publishers, Inc. 1935.

This book is a summary of the latest gynecological and obstetrical literature published in this country and abroad during 1934. Reviews of original papers are done in a straightforward and concise manner and contain many practical diagnostic and therapeutic points to make it a worthy guide in the practice of these two specialties.
M. J. G.

THE NERVOUS PATIENT—A FRONTIER OF INTERNAL MEDICINE. By Charles Phillips Emerson, M.D., Research Professor of Medicine, Indiana University, Indianapolis. Philadelphia: J. B. Lippincott Company. 1935.

As the author says, this book has been written by an internist for the benefit of the general practitioner. The book takes in a great deal of territory in discussing both organic and functional conditions and also some other conditions not ordinarily considered neurological. For example, we find discussed angina pectoris, appendicitis, arthritis and typhoid fever, to mention only a few. The neuropsychiatrist will find little in the book to interest him and even to the general practitioner some of the discussions will fail to be very helpful. A condition like tabes dorsalis which is not so very uncommon is treated in less than a page, and it is difficult to see how the general practitioner will secure much aid here in treating tabetic patients. Certain nervous diseases, such as myasthenia gravis for example, are much more helpfully described and discussed in the conventional textbooks on neurology.

The strong point of the book is the discussion of the functional nervous disorders of psychoneuroses. These are rather comprehensively treated; the discussions are practical and will be of considerable assistance to the general practitioner. On the whole we feel that the good points of the book outweigh its defects. It can be

especially recommended to one who wishes to better understand the psychoneuroses, even though the viewpoint of modern psychiatry is not comprehensively presented. B. L. E.

A TEXTBOOK OF HISTOLOGY. By Alexander A. Maximow, Late Professor of Anatomy, University of Chicago, and William Bloom, Associate Professor of Anatomy, University of Chicago. Second edition, completely revised with 530 illustrations, some in color. Philadelphia and London: W. B. Saunders Company. 1934. Price \$7.00.

The first edition of this excellent textbook of histology was published in 1930. The original book was to have come from the pen of Maximow but he died in 1928 before the book was completed. William Bloom, at present associate professor of anatomy, University of Chicago, undertook the task of finishing the book and has succeeded admirably.

The second edition, published in 1934, is a recast of the first. The basic and important facts of histology are in large type. The controversial ideas and less important details of histology are in small type. At the end of each chapter there is a liberal number of references.

A textbook of histology has little appeal to general practitioners of medicine. However, the internist could read with benefit the chapter on blood forming and destroying tissues. Perhaps he will not agree with Maximow's doctrine of the unitarian origin of blood cells; at least the unitarian theory is very well presented and to the reviewer, who has no special knowledge on the subject, it is just as plausible if not more so than the dualistic or trialistic theories.

The other chapters, too, would hold great interest to various specialists who are interested in the minute anatomy of their respective field, viz., the ophthalmologist, aurist, etc.

The illustrations are excellent. There are a number of illustrations of reconstructions, as of the liver, tongue, intestines, etc., that are especially valuable in visualizing the construction of certain organs.

To those who wish to review histology and to those who are studying histology for the first time the book is heartily recommended. F. C. N.

THE DOCTOR'S BILL. By Hugh Cabot. With an introduction by A. Lawrence Lowell. New York: Morningside Heights, Columbia University Press. 1935. Price \$3.00.

The title of this book sounds far more popular than the contents will be to the average physician who is trying to collect his bills. This is a philosophic treatise upon the trends in methods and practice. It is quite different in its viewpoint from the book by Christie (*Economic Problems in Medicine*).

The medical profession recognizes Hugh Cabot as an illustrious medical representative, administrator and urologic surgeon. The name of Cabot is great in medicine whatever direction is pursued. The introduction by A. Lawrence Lowell, formerly president of Harvard University, is a further guarantee that the conservative, God-communicating sequence has been preserved.

The title is somewhat misleading because the substance of the book takes a far look into the trends of medical practice. The viewpoint is more philosophical and detached than practical. One should not say that it is impractical but certainly the book offers little comfort to those of us who are harassed by the economic problems of the moment. The book finds

flaws rather than faults with the activities of the Bureau of Economics of the American Medical Association. The book is not antisocial or anti-American Medical Association. It is just a cold analysis of medical trends and Cabot seems to believe that things are going to be different, in fact quite different, as the inevitable turning-tables of social organization are applied to medical practice.

Cabot quotes time and again from Sir Arthur Newsholme, the eminent English public health protagonist. Sir Arthur has a good reputation but his American debut and subsequent experiences were devised by the lately deposed Kingsbury of the Milbank Fund. Unquestionably this has interfered with the proper reception of Sir Arthur's ideas by the American profession. No less an individual than the great Welch of Hopkins was sponsor, partisan and friend of Sir Arthur. But whatever influence Sir Arthur's visit had on America he has failed to provoke any echo or chorus of praise by organized medicine here.

Of course, the average American physician looks no further than the end of his nose for the solution of an economic problem. Therefore in choosing the accessible hay of the moment he may be missing the great pasture of perpetual nourishment. In spite of the resolving of county, state and national organizations in medicine there are inevitable changes that are now in the process of sedimentation. The waters are stirred unreasonably and beyond all ocular vision of immediate solution. The dough is in the kneading, the leaven cannot be measured. How far are the present activities in so-called social security going? Will they engulf the established methods of individualistic and collective group methods of practice? Will they demand the regimentation of medicine to the extent that police protection, public education, water supply and fire protection now enjoy compulsory taxation?

Cabot's concluding chapter is entitled "Where do we go from here?" The theme of Cabot's message is "he that pays the piper, calls the tune." Therefore the taxpayer gets far more house from Cabot than the theme songs of 1934-1935 American Medical Association meetings grant. Cabot feels that in meeting the demands of science, medical organization has progressed to an adequate extent, but that there has been failure to recognize the problem of social medicine; therefore, the profession is now suffering from the folly of its own neglect. Cabot constantly reiterates his concern for the public interest. Cabot believes that physicians should be paid for their care of indigent and semi-indigent patients by state payments, taxation and by collective subsidies for workman's compensation industrials, poor geographical population groupings, etc. Cabot does not fear but rather encourages the introduction of laymen into medical groupings, boards, committees, etc., to provide stability (in finances) and register public opinion. He favors more and better public health personnel, nurses and social workers and a larger active participation by physicians.

Cabot does not argue for state medicine. Rather does he analyse the inadequacies of medical organization toward what he considers the inevitable demands of public interest. Therefore this may be considered as the viewpoints of a physician whose family training and life have been ultra-conservative, his reactions to the clamor of propaganda and foundations the alleged stubbornness or short-sightedness of organized medicine, the trends toward social security and the wider distribution of the benefits of invention, research and what we are now calling civilization. It is not an antidote to Christie's book. Rather is it a bitter pill and here's hoping that the profession is not jaundiced and don't need it. But it is written by a Cabot and you cannot just rub it off your list. E. H. S.

THE AUTONOMIC DISEASES OR THE RHEUMATIC SYNDROME. By T. M. Rivers, M.D. Philadelphia: Dorrance & Company, Inc. 1934.

This is a book of 299 pages, 5 x 7½ inches in size. The paper is of rather poor quality, but the printing is fairly well done. We have noted relatively few lapses in the editorial supervision.

The author lives in Kissimmee, Florida. In the directory he is marked as a specialist in obstetrics and gynecology. On the title page he is credited with being the author of several publications, such as focal infection, the resulting morbidity and treatment for same, arthritis with special reference to cause, proteins in human pathology, blood pressure, arthritis in industry, etc.

The book reminds us of the writings of Paracelsus. There is that same largeness of theory and paucity of facts. One wonders also whether the book was intended for the laity or for the profession.

As for the theory, one finds the basis for it in Professor's Cannon's lectures on the antagonism between adrenalin and the choline derivatives. But the practical application remains as far off after reading the book as before beginning it.

Many of us have felt that toxins were causing arthritis but how to undo their damage and how to prevent their development has been beyond us. The best sellers today still are textbooks on therapeutics.

Our osteopathic friends might get considerable consolation out of the theory that the autonomic nerves cause all the various upsets enumerated by Dr. Rivers.
G. H. H.

WHAT YOU SHOULD KNOW ABOUT HEART DISEASE. By Harold E. B. Pardee, M.D., Assistant Professor of Clinical Medicine, Cornell University Medical School. Second edition, thoroughly revised. Philadelphia: Lee & Febiger. 1935. Price \$1.50.

This booklet intended by the author to be handed out by the physician to his patients, represents an attempt to meet a very decided need.

This need arises from the fact, unfortunately, that the more scientific knowledge a physician has the less able he is to talk in the language of the laity. Because of this patients of the men who do heart work are apt to obtain their information about heart disease from their neighbors and the cultists rather than from scientific sources. Probably the best way to meet this difficulty would be for a physician to have such a book as this of Pardee's to hand patients and ask them to read it and then come back and ask questions about it and discuss it; because your reviewer doubts whether the ordinary patient can understand and absorb the material here presented without considerable coaching.

Your reviewer, then, would recommend this book as a textbook for discussions on heart disease between the physician and his patients.
G. H. H.

THE CARE OF THE AGED, THE DYING AND THE DEAD. By Alfred Worcester, M.D., Sc.D., Henry K. Oliver, Professor of Hygiene, Harvard University. Springfield: Charles C. Thomas. 1935. Price \$1.00.

This small paper-backed book consists of three charmingly written essays that can hardly be appreciated by other than older, good physicians. They carry no essential therapeutic values and their practical value rests in the philosophical consideration of these three fading events of life. This English style of essay is all too infrequent in American medical literature. The physicians, products of the immediate past and the present type of research training, are not interested in geriatrics. In other words, every type

of specialist has been trained excepting the death specialist. The modern ambition to obtain autopsy percentages undoubtedly has failed to regard the niceties and the dignity of death or the exhibition of a sympathy and understanding of the process of dying. Has the modern confidence and allegiance to cellular pathology blunted our concern for the philosophical regard of the mental equations at life's end? If hospital populations increase with interns conducting deaths and eagerly awaiting autopsy proof of diagnostic guessing, then the refinements of geriatrics will be neglected. These beautiful essays guarantee that there are other values than research and economic straining in medicine.
E. H. S.

MASSAGE AND REMEDIAL EXERCISES IN MEDICAL AND SURGICAL CONDITIONS. By Noël M. Tidy, member of the Chartered Society of Massage and Medical Gymnastics; Sister-in-Charge of the Massage department, Princess Mary's Royal Air Force Hospital, Halton. Illustrated. Baltimore: William Wood and Company. Price \$5.25.

This book is written by an English Sister trained in massage in Guys Hospital and in charge of the massage department, Princess Mary's Royal Air Force Hospital, Halton. It is very compact, printed in fine but clear type with many small but good illustrations. It covers in detail the entire field of traumatic and inflammatory lesions of the body, the congenital and acquired deformities, the paralytic diseases and cardiac and respiratory disease which may be helped by physical remedies.

Beginning with fractures it describes each fracture in detail; mentions the method of treatment and the type of splint used and goes on with minute instructions as to the time massage and movements may be begun and just what they should consist of early and late. The time when light work may be begun is indicated and the time that the patient might return to full duty.

It is easy for an orthopedic surgeon to be somewhat critical of these early chapters because some of the statements about treatment of fractures do not agree with his views. It should be remembered that this is not a treatise on fractures but on massage and remedial exercises in their after care. The author naturally reports the methods and splints in common use by the English surgeons with whom she works.

It is evident that massage and exercises are begun much earlier in these English hospitals than is the average custom in America. The reviewer thinks these earlier efforts to improve circulation and mobilize the limb are right and desirable provided thoroughly skilled technicians are available. The most valuable use which could be made of this book is to place it in the hands of assistants, nurses and physical therapists who are associated with orthopedic or industrial surgeons.

The various types of sprains, bursitis and joint lesions are described in detail and available treatment indicated.

Under diseases of the nervous system the etiology, pathology and symptoms are summarized briefly but well. An intelligent and ambitious nurse would find it a convenient textbook for acquiring all the knowledge she could ever need of these diseases. The appropriate treatment is outlined in great detail. Any one interested in this book would do well to turn to chapter ten on tabs and see how clearly and completely the re-education treatment is set forth. It should sell the book to any one treating these cases, both for his own information and as a textbook for his assistants.

This book presupposes a knowledge of the principles of physical therapy and massage and of directed exer-

cises and devotes itself to detailed instructions as to their use in almost every condition in which they are indicated. It should have a wide circulation among all those interested in this important department of therapeutics.

R. M. S.

DISEASES OF THE MOUTH AND THEIR TREATMENT. A Textbook for Practitioners and Students of Medicine and Dentistry. By Hermann Prinz, A.M., D.D.S., M.D., D.Sc., Dr. Med. Dent. Professor of Materia Medica and Therapeutics, The Thomas W. Evans Museum and Dental Institute, School of Dentistry, University of Pennsylvania, Philadelphia, and Sigmund S. Greenbaum, B.S., M.D., Associate Professor of Dermatology and Syphilology in the Graduate School of Medicine of the University of Pennsylvania, et al. Illustrated with 287 engravings and eleven colored plates. Philadelphia: Lea & Febiger. 1935. Price \$9.00.

One of the most important fields in medicine and dentistry is oral diagnosis. The mouth in many instances acts as a barometer for the entire body, registering evidence of systematic disease even before the patient realizes he is ill. Lesions of the oral mucosa in certain infectious diseases may be noted sometimes days before the characteristic eruption appears on the body. This same condition prevails with many diseases of the skin where lesions of the oral mucosa often may be found before the skin lesion develops. Likewise certain blood dyscrasias and diseases of metabolism register themselves in changes in the oral mucosa and more particularly in the gums before symptoms of a general nature appear. Because of these facts, physicians and dentists who fail to make a complete oral examination of patients may often fail to observe early symptoms of disease elsewhere, or may escape conclusive diagnostic evidence where other signs and symptoms are indefinite.

"Diseases of the Mouth and Their Treatment" by Prinz and Greenbaum will serve as a valuable addition to our medical and dental libraries. Quoting from the preface: "The authors have endeavored to combine the viewpoint of the physician with that of the dentist and guided by their extensive class room experience and clinical practice, have made an effort to treat the entire subject matter as a medico-dental problem."

Following chapters on embryology, anatomy and physiology of the oral cavity, the writers have taken up in detail not only oral manifestations of diseases of local origin but in addition oral manifestations of systemic disease. They have used to advantage information gathered from publications by many authors. The book is well illustrated with photographs, drawings and colored plates. The book should prove of great value to physicians and dentists and should stimulate more careful mouth examination as a routine procedure with all patients.

V. L.

A TEXTBOOK OF SURGERY. By W. Wayne Babcock, A.M., M.D., LL.D., F.A.C.S., Professor of Surgery and of Clinical Surgery in The Temple University, etc. Second edition, rewritten with 1032 illustrations and eight plates in color. Philadelphia and London: W. B. Saunders Company. 1935. Price \$10.00.

This text is a distinct addition to the surgeon's library. It covers the surgical field in its entirety. There are chapters on cranial surgery; oral surgery; dentofacial surgery; orofacial surgery; pelvic or gynecological surgery; genito-urinary or urological surgery; rectal or proctologic surgery; obstetrical surgery, and orthopedic surgery. The text and illus-

trations are meticulous in preparation and detail. All students of the art of surgery should possess this text.

O. J. P.

ECONOMIC PROBLEMS OF MEDICINE. By A. C. Christie, M.S., M.D., Professor of Clinical Radiology, Georgetown University Medical School; President, Fifth International Congress of Radiology, etc. New York: The Macmillan Company. 1935. Price \$2.00.

It is about time that the principles of medical economics and a discussion of the pathways of solution (?) were presented to American physicians. Christie has done the job well. The number of pages of print upon this subject in medical journals, lay magazines, commission reports and foundation propaganda probably equals the unexpurgated Congressional Record. But Christie has reviewed all this material and within a reasonable and readable number of pages has presented a splendid analysis of the subject.

We can never hope for any one solution of any economic problem; they change with time, machinery, personalities, politics and governments. There can be fundamental principles or ethical backgrounds which serve useful purposes. Even antagonistic types of governmental activity must observe primary professional ethics.

Christie has divided the book into twelve chapters; the first six expose the economic and ethical relationship of the physician to his colleagues, to medical education, to medical organization, to hospitals, to social workers and to charity problems. The last six chapters discuss the avenues of solution via workmen's compensation, health insurance (voluntary or compulsory), industrial medicine. The practical plans of the Alameda County, San Diego County, Wayne County (Detroit) and District of Columbia are reported satisfactorily.

Christie claims no clairvoyance and offers no particular solution but he does array the facts and the ethics so that the reader may appreciate this subject from every angle. The book can serve as an ethical economic bible for physicians. We heartily recommend the author, the book and the subject.

E. H. S.

DIETETICS FOR THE CLINICIAN. By Milton Arland Bridges, B.S., M.D., F.A.C.P., Director of Medicine, Department of Correction Hospitals, New York, et al. Foreword by Herman O. Mosenthal, A.B., M.D., Director of Medicine at the New York Postgraduate Medical School, Columbia University, New York. Second edition, thoroughly revised. Philadelphia: Lea & Febiger. 1935. Price \$10.00.

This is an encyclopedic work and contains answers to most of the questions coming to the physician in his consultation work. It consists of three parts and an appendix. The first part takes up the mechanics of digestion; the physiology and chemistry of digestion; the vitamin factors in diet; and a discussion of the various types of food and the food content. Part two gives in extenso a discussion of diet and menus for individual diseases. Part three is devoted to pediatrics. The appendix gives height and weight tables and tables of analyses of foods.

Dietaries vary in different parts of the country, but the information on which dietaries are based is uniform. Therefore the tables given in the last 200 pages of this volume are of great value; the more so because they seem to your reviewer the most complete that he has met with.

Ten dollars seems a large amount to pay for a book on dietetics, but probably for most general practitioners it would be the best investment in books possible, outside of a textbook on practice.

G. H. H.

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THE USE OF MECHOLYL IN ARTHRITIS

OLIVER ABEL, JR., M.D.

ST. LOUIS

The correct evaluation of a new therapeutic measure is always difficult and in a disease which has as many factors influencing it as has arthritis it is particularly so.

When we consider the multiplicity of factors which enter into this disease the need for concentration and specialized care for rheumatic patients and especially for the relief of pain becomes all the more obvious. It is the latter, i. e., the relief of pain, with which we are concerned in this paper. Space does not permit a discussion of the many types of treatment and therapeutic aids for this condition. The good results that we have obtained with the use of mecholyl has prompted us to report our cases. Mecholyl is acetyl, beta, methylcholine chloride. It produces effects similar to those produced by stimulation of the parasympathetic nerves. It slows the heart, lowers blood pressure, constricts the bronchioles, increases glandular activity and intestinal tone, stimulates peristalsis, and dilates the peripheral vascular system. The latter action makes it useful in arthritis inasmuch as circulatory disturbances are believed to play an important role in chronic arthritis and frequently accompany and aggravate the condition. The effects of mecholyl may be instantly abolished by atropine. In order to avoid the general effects of the drug and to concentrate its action at a local site, we employed mecholyl locally by the method of iontophoresis.

The therapeutic effect of this form of treatment might be explained by the deposition of the drug in the superficial tissues and its slow absorption from there giving a prolonged slight general vasodilatation, com-

bined with a pronounced and prolonged local effect.

The characteristic symptoms noted after treatment are increased skin temperature and sweating which continue for six to ten hours, and a slight diffuse redness.

While such symptoms as increased salivation, sweating, and slight weakness are very occasionally noted by the patient they pass off quickly and in no case were any unpleasant or alarming symptoms observed.

Kovacs¹ reported a series of cases in which mecholyl was used by the method of iontophoresis. He noted the best results were obtained in rheumatoid arthritis, 95 per cent of the cases showing improvement. Good results, however, were obtained in many cases of the osteo-arthritic type. In both types of arthritis he reports that where the patient had definite swelling there was a reduction of the swelling. Alleviation of pain was prompt and increased mobility of the joints was noted.

The method used is as follows: The affected joint is wrapped with a piece of sheet asbestos which has been saturated in 1/5 of 1 per cent solution of mecholyl. This is covered tightly with a piece of blocked tin which is kept in place with an elastic bandage. The blocked tin is connected to the positive pole of the galvanic machine. The negative pole may be applied to the buttocks, thigh or calf of the leg. Several joints may be treated at one time simply by connecting the several joints treated to the positive pole. The current is turned on to between 25 to 30 milliamperes and kept on for between twenty-five and thirty minutes. The number of treatments necessarily varies. In the beginning treatments may be given once a day and gradually reduced to one to two times a week or longer depending on the patient. As will be noted in table 1 some of our pa-

From the Soper-Mills Clinic.

1. Kovacs, Joseph: The Iontophoresis of Acetyl-Beta-Methylcholin Chloride in the Treatment of Chronic Arthritis and Peripheral Vascular Disease, *Am. J. M. Sc.* **188**:32 (July) 1934.

Table 1. *Summary of Cases*

| Age | Sex | Type | Location | Number of Treatments | Result | Remarks |
|-----|-----|--|--|-------------------------|--|--|
| 60 | M | Hypertrophic osteo-arthritis | Cervical spine | 14 | Relieved of pain | |
| 52 | F | Hypertrophic osteo-arthritis | Cervical spine | 23 | Relieved of pain | |
| 70 | F | Hypertrophic osteo-arthritis | Left shoulder | 11 | Slight relief | |
| 72 | F | Hypertrophic osteo-arthritis | Cervical spine | 23 | Relieved of pain | |
| 46 | F | Rheumatoid arthritis | Fingers | 15 | Relieved of pain; swelling subsiding | |
| 30 | F | Rheumatoid arthritis | Wrists and ankles | 20 | Relieved of pain | |
| 30 | F | Hypertrophic osteo-arthritis | Dorsal spine | 9 | Relieved of pain | |
| 32 | M | Subdeltoid bursitis | Left arm | 3 | Relieved of pain | No recurrence of pain |
| 28 | M | Marie-Strümpell type | Spine | 8 | No relief | Discontinued because of no relief |
| 70 | M | Hypertrophic osteo-arthritis | Cervical spine | 8 | Relieved of pain | No recurrence after two months |
| 58 | M | Hypertrophic osteo-arthritis | Cervical spine | 14 | Relieved of pain | No recurrence three weeks after treatment |
| 65 | M | Arthritis | Right shoulder | 5 | Relieved of pain | No recurrence four weeks after treatment |
| 57 | F | Rheumatoid arthritis | Knees | 8 | Relieved of pain | No recurrence two weeks after treatment |
| 36 | F | Rheumatoid arthritis | Fingers | 16 | Relieved of pain | Pain better; without treat- ment for five weeks |
| 48 | F | Hypertrophic osteo-arthritis | Cervical spine | 28 | Relieved of pain | |
| 33 | F | Hypertrophic osteo-arthritis | Thoracic spine | 18 | Relieved of pain | No treatment for six weeks |
| 19 | F | Rheumatoid arthritis | Knees and fingers | 12 | Relief of pain and swelling | No treatment for three weeks |
| 33 | M | Rheumatoid arthritis | Right knee | 37 | Relief of pain and swelling | |
| 54 | M | Hypertrophic osteo-arthritis | Finger | 12 | Increased mobility and relief of pain | |
| 25 | F | Hypertrophic osteo-arthritis | Cervical spine | 16 | Relieved of pain | |
| 45 | F | Hypertrophic osteo-arthritis | Cervical and thoracic spine | 21 | Relieved of pain | No treatment for two months |
| 36 | M | Hypertrophic osteo-arthritis | Lumbar spine | 6 | Relieved of pain | |
| 39 | M | Hypertrophic osteo-arthritis | Lumber spine and sacro-iliac joints | 33 | Slight relief | Effect questionable |
| 42 | F | Hypertrophic osteo-arthritis | Cervical spine | 4 | No relief | Stopped treatment |
| 70 | F | Pain secondary to compres- sion, fracture | 4th lumbar vertebra | 6 | Definite relief | Given after healing of fracture for pain relief |
| 43 | F | Hypertrophic osteo-arthritis | Sacro-iliac joints | 11 | Relieved of pain | |
| 56 | F | Rheumatoid arthritis | Hands and knees | 10 | Relieved of pain | |
| 66 | F | Hypertrophic osteo-arthritis | Knees | 7 | Relieved of pain | No treatment for three months |
| 44 | M | Torticollis | | 6 | Relief of pain and spasm | |
| 53 | M | Lumbago | | 2 | Relief of pain | |
| 48 | F | Rheumatoid arthritis | Fingers and feet | 20 | Relieved of pain; swelling reduced | No treatment for one month. Still improved |
| 45 | F | Hypertrophic osteo-arthritis | Feet | 12 | No relief | |
| 45 | M | Hypertrophic osteo-arthritis | Fingers | 6 | No relief | |
| 60 | M | Hypertrophic osteo-arthritis | Cervical spine | 4 | Relieved of pain | No discomfort one month later |
| 61 | M | Hypertrophic osteo-arthritis | Cervical spine | 7 | Relieved of pain | Takes treatment every two to three weeks |
| 37 | M | Lumbago | | 3 | Relieved of pain | |
| 35 | F | Hypertrophic osteo-arthritis | Cervical spine | 12 | Relieved of pain | Pain better three months after treatment |
| 52 | F | Hypertrophic osteo-arthritis | Right shoulder and elbow | 23 | Relieved of pain | No recurrence after one month |
| 41 | M | Acute sprain, left ankle | | 4 | Relieved of pain; swelling relieved | |
| 39 | F | Hypertrophic osteo-arthritis | Dorsal spine | 12 | No relief | |
| 66 | F | Rheumatoid arthritis | Left hand | 31 | Relief of pain; swelling subsided | Full use of hand; no re- turn of swelling or pain three months later |
| 50 | M | Lumbago | | 3 | Relieved of pain | |
| 56 | F | Hypertrophic osteo-arthritis | Dorsal spine | 18 | Relieved of pain | No treatment for one month |
| 36 | F | Rheumatoid arthritis | Hands | 16 | Relieved of pain | Better |
| 50 | F | Hypertrophic osteo-arthritis | Lumbar spine | 28 | Relieved of pain | |
| 63 | M | Hypertrophic osteo-arthritis | Knees | 20 | Relieved of pain | |
| 66 | M | Hypertrophic osteo-arthritis | Foot | 9 | Relieved of pain | |
| 35 | F | Rheumatoid arthritis | Hands | 2 | No relief | |
| 56 | M | Sciatica | | 4 | Relief | |
| 40 | M | Hypertrophic osteo-arthritis | Left shoulder | 6 | Relieved of pain | |
| 42 | M | Lumbago | | 4 | Relief of pain | |
| 37 | M | Marie-Strümpell | Spine | 9 | No relief | |

tients have remained free from pain for as long as two to three months without treatments. Following is a summary of our cases:

We have used this treatment in fifty one cases. There are twenty nine cases of osteoarthritis, eleven cases of rheumatoid arthritis, two cases of the Marie-Strümpell type of spine condition and nine cases of myositis and neuritis.

Of the twenty nine cases of osteoarthritis, twenty six or 90 per cent experienced definite relief of pain. They were chiefly of the spine and some of them were having symptoms of involvement of the cervical spine which is ordinarily very troublesome to the patient and very hard to relieve with the usual measures in vogue.

Two cases of Marie-Strümpell disease showed no improvement.

Ten of the eleven cases of rheumatoid arthritis showed definite improvement both in the relief of pain and lessening of the swelling.

All nine of the myositis and neuritis cases showed improvement.

How long these cases will go in the future without treatment or what changes in the joints from a pathological standpoint will take place I am unable to say at present.

This method is certainly not to replace the usual treatment directed to the underlying cause of rheumatism, namely the correction of foci of infection, metabolic disturbances, etc., but is merely to be used as a means of giving relief of the pain.

Our cases reported were all chronic. We have had no experience in the use of mecholyl in acute joints or in gonococcal arthritis.

SUMMARY

1. Mecholyl given by iontophoresis increases capillary flow as evidenced by increased redness of the area treated.

2. Mecholyl iontophoresis was used in 51 cases of osteoarthritis, rheumatoid arthritis, myositis and neuritis giving a 90 per cent relief in the cases of arthritis and 100 per cent relief in the cases of myositis and neuritis.

3. Two cases of Marie-Strümpell disease showed no improvement.

3701 Westminster Place.

Bernard Mortimer and Gertrude Beard, Chicago (Journal A. M. A., Aug. 17, 1935), tested nine new short wave diathermy machines for their ability to heat the tissues of the human thigh. A conventional spark-gap diathermy machine was used for comparison. To date fourteen short wave diathermy machines with wavelengths ranging from 6 to 25 meters have been tested for their ability to heat the tissues of the human thigh.

QUINIDINE SULPHATE: ITS ACTION AND USES

PETER T. BOHAN, M.D.

KANSAS CITY, MO.

Since quinidine sulphate came into use as a heart remedy less than twenty years ago, its indications, contraindications, dosage and dangers are not as yet definitely established. The chief indication for the use of quinidine is to prevent or abolish an abnormal rhythm. This is its only desirable effect. Quinidine is contraindicated if there are signs of decompensation, when patients are advanced in years, or in any patient who gives a history of embolic phenomena. As it is a depressant to the heart muscle it should be used cautiously if at all in patients with heart block, either auriculoventricular or bundle branch.

MODE OF ACTION

The chief action of quinidine is to depress the property of irritability of the heart muscle. It is largely due to this action that it owes its usefulness as well as some of its dangers. It depresses hyperirritable foci that give rise to such rhythmic disturbances as extrasystoles, paroxysmal tachycardia, auricular fibrillation and flutter. Fortunately it has little or no effect on the sinus node and should not be used to correct a sinus tachycardia. Quinidine depresses conduction in the auricles and to a slight extent auriculoventricular conduction. It has little or no effect on the tone of the heart muscle. The commonest toxic manifestations, usually due to excessive dosage, are tinnitus, headache, vomiting, diarrhea, skin rashes and, occasionally although rarely, sudden death.

QUINIDINE AND DIGITALIS

Some physicians have gained the impression that quinidine is similar to digitalis in its action. The fact is, the effect of these two drugs is almost diametrically opposite. Irritability of the heart muscle is decreased by quinidine while this same property is increased by digitalis, especially in toxic doses. Moreover, digitalis increases the properties of tonicity and contractility and decreases conductivity in the auriculoventricular bundle, while the effect of quinidine on these properties is negligible. Because of the antagonistic action of these two drugs they have been given together but there is no logical reason why this should be done. To give

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two drugs in toxic doses in the hope that the action of one may counteract that of the other is not good therapy. Although quinidine may prevent or abolish toxic rhythms induced by digitalis, experimentally it has been found that the two drugs together produce effects seldom seen with either drug alone. In the treatment of auricular fibrillation most men prefer to slow the rate with digitalis before giving quinidine. There should be no objection to this, providing the patient is not over digitalized.

AURICULAR FIBRILLATION

In paroxysmal auricular fibrillation quinidine is indicated both to stop attacks and to prevent the frequency of their occurrence. I prefer using quinidine in the dosage of 6 to 12 grains daily to prevent or postpone the onset of chronic fibrillation rather than to use it to abolish the arrhythmia once it is established. In chronic fibrillation a normal sinus rhythm may be restored and maintained for a variable length of time in approximately 50 per cent of cases. To obtain such results, 24 to 40 grains daily may be required but this amount should not be given for more than from five to seven days. The case of established fibrillation for which quinidine may be used with a fair degree of safety is a patient whose heart has not been fibrillating longer than a few months, who has no evidence of cardiac pathology, who has no signs of decompensation and who has not had embolic phenomena. Authorities differ widely on the dangers of quinidine in patients with established fibrillation. One writer reports no untoward results from its use in over 100 cases, while his colleague in ninety-six cases had nine sudden deaths, five of which he attributed to quinidine. The two chief dangers from the use of quinidine in fibrillation cases are embolism, due to dislodgment of a clot in the auricles, and sudden death from standstill of the heart, due to depression of the pacemakers. Although fatalities due to the action of quinidine rarely occur, a number of sudden deaths from its use have been reported by reliable observers.

For at least ten days following a thyroidectomy for active hyperthyroidism, the use of quinidine is not without danger. During the last winter I have seen three patients that died suddenly between the sixth and ninth day following thyroidectomy, and it seemed as though quinidine might have been indicated. The dosage ranged between 18 to 24 grains daily. The excessive amount of thyroxin that is deposited in the heart mus-

cle immediately following a thyroidectomy makes the action of quinidine uncertain.

In cases of established fibrillation, irrespective of its cause, it is decidedly questionable if the benefits derived from the temporary restoration of a sinus rhythm justify the possible dangers incident to the dosage of quinidine usually required. I no longer use quinidine for established fibrillation as I feel the safer procedure is to control the ventricular rate with digitalis.

AURICULAR FLUTTER

In this rare form of arrhythmia quinidine may be used but is probably no more effective than digitalis. The frequency and duration of attacks are usually lessened by 6 to 9 grains of quinidine daily.

EXTRASYSTOLES AND PAROXYSMAL TACHYCARDIA

If one accepts the most probable theory that these types of irregularity are merely the expression of different degrees of a hyperirritable myocardium, then quinidine by decreasing irritability should act favorably in such cases. In fact, conclusions as to the usefulness of quinidine as a heart remedy should be based largely on its effects in correcting or lessening such rhythmic disturbances. Most authorities have observed the beneficial effects of quinidine both in preventing and abolishing attacks of paroxysmal tachycardia, whether of the auricular or ventricular type. But there is wide divergence of opinion of its action on extrasystoles. Some writers report no effect whatever in 95 per cent of cases, while others report cures in as high as 80 per cent of cases. But in an irregularity, such as extrasystoles, due to a variety of causes and with a tendency to let up spontaneously, the effect of a drug cannot be judged on a strictly percentage basis of cures or failures.

In the last two years I have prescribed quinidine to relieve extrasystoles for seventy-five office patients. Indications for its use were: First, when the extrasystoles caused discomfort or anxiety and, second, to prevent more serious disturbances of rhythm. Patients were advised to take the drug for four days and then omit it for three days. Taken in this way, evidence of relief was obtained either from the patient's statement or from examination in over 80 per cent of the cases. The dosage was from 6 to 9 grains daily. Toxic symptoms were not observed in any case. In the last two years quinidine has been given to fourteen office patients complaining of attacks of rapid

heart action diagnosed as paroxysmal tachycardia. In agreement with most observers, quinidine has been found to be more effective in preventing and abolishing such attacks than either digitalis or strophanthin.

CASE REPORTS

An illustrative case is the following: A man aged 66 years was first seen five years ago. At the age of 51 he began having an occasional attack of rapid heart action and for three years before he was first seen, each attack was accompanied by severe anginal pain. An electrocardiogram taken during an attack in the office showed paroxysmal tachycardia of the auricular type. For the last five years he has taken 12 grains of quinidine almost daily, and has averaged two to five slight attacks a year while for three years before taking quinidine he had an average of three to five attacks a month. He had taken digitalis without relief.

Last October, a woman aged 51 consulted us because of spells of dizziness accompanied by extreme weakness. For four months she had been having eight to twelve spells daily. An electrocardiogram taken during one of her spells showed a ventricular tachycardia with a heart rate of 176. Physical examination was negative except for a nodular goiter. There were no symptoms of hyperthyroidism and the basal metabolic rate was minus 4. On 9 to 12 grains of quinidine daily for a month her attacks were apparently uninfluenced. She was then given 5 grains every eight hours and on this dosage she averaged three or four light attacks daily, occasionally going two to three days without an attack. A subtotal thyroidectomy was done in January and the first week following the operation she had two moderately severe attacks. On leaving the hospital she was advised to take 5 grains of quinidine every eight hours. Her only attack of rapid heart action in the last ten weeks occurred three weeks ago and this was in the evening of the only day she missed taking quinidine.

The seriousness of ventricular tachycardia may on certain occasions justify huge doses of quinidine. A case is reported and possibly a life saved by the administration of 100 grains in 24 hours.

QUINIDINE AND MYOCARDIAL INFARCTION

Next to rest and morphine, quinidine is probably the most valuable therapeutic agent in myocardial infarction. Postmortem studies show that only about 5 per cent of cases of coronary occlusion die from rupture of the heart. The consensus is that the most common cause of sudden death in myocardial infarction is fibrillation of the ventricles. Evidence supporting this view has been supplied in a very convincing manner by Nathanson of Minneapolis. From animal experiments, as well as clinical studies, he shows rather conclusively that ventricular fibrillation is due to increased irritability of the ventricles. He does not believe that ventricular fibrillation is often a sudden development, usually being preceded by ventricular extrasystoles followed by ventricular tachycardia. By giving animals adrenalin intravenously he was able to produce ventricular extrasystoles followed by

ventricular tachycardia and sudden death, due to ventricular fibrillation. In not a single instance could these rhythmic disorders be produced in animals that had been given quinidine. In man the frequent occurrence of extrasystoles following the intravenous administration of adrenalin could be prevented with quinidine but with no other drug. To prevent ventricular fibrillation and sudden death in cases of coronary occlusion, Nathanson advises 5 grains of quinidine four times a day for from two to four weeks. He also advises the use of quinidine in angina pectoris when the attacks occur too frequently. For a number of years I have given all cases of myocardial infarction 9 to 12 grains of quinidine daily for several weeks, but perhaps the larger doses are better. I, also, subscribe to the use of quinidine in moderate doses in patients with angina pectoris—not to relieve pain but to prevent death from ventricular fibrillation.

Although quinidine has not fulfilled its early promise of being a specific for auricular fibrillation, its value as a remedy in lessening disturbances of myocardial function, due to an irritable heart muscle, is unquestioned.

To summarize, the chief action of quinidine is to lessen cardiac irritability. Its chief field of usefulness is to prevent serious rhythmic disturbances, especially those that originate in the ventricles in such conditions as myocardial infarction or angina pectoris. Knowledge of its pharmacological action and clinical results justify its use in extrasystoles and paroxysmal tachycardia. The dangers from its use in established auricular fibrillation probably outweigh its occasional beneficial effect. It is a cardiac depressant and sudden death from its use, although infrequent, may occur. Signs of toxic manifestations should be kept in mind and excessive dosage avoided.

906 Medical Arts Building.

A. C. Ivy, Chicago (Journal A. M. A., Aug. 17, 1935), points out that the administration of adequate amounts of raw pancreas or active pancreatic extracts orally in the presence of a deficiency of the external pancreatic secretion has a firm theoretical basis. The value of raw pancreas given orally to depancreatized dogs is established, the chief value of the therapy apparently being to prevent fatty degeneration of the liver. There is some evidence indicating that administration of raw pancreas and pancreatin to animals and patients having a definite deficiency of pancreatic secretion decreases the loss of fat and nitrogen in the feces. Such therapy has been used in sprue and other conditions, but its value in these has not been definitely established.

HEART DISEASE IN CHILDREN

HARRY M. GILKEY, M.D.

KANSAS CITY, MO.

From January, 1924, to January, 1935, at the Children's Mercy Hospital in Kansas City, Missouri, we have cared for 458 children suffering from chorea, rheumatic fever and its accompanying cardiovascular damage.

THE GENERAL PLAN OF THE CARDIAC CLINIC

1. Careful diagnosis and classification of each case.
2. Treatment of the cardiac condition.
3. The improvement of the nutrition and health of the children.
4. The removal of portals of entry for infection.

DIAGNOSIS AND CLASSIFICATION

Particular inquiry is made as to chorea, rheumatism, joint pains, sore throat, scarlet fever, etc. We attempted to study the familial¹ incidence, age of primary² infection and reactivations, seasonal incidence of primary infections and reactivations,³ colds, incidence of tonsillitis,⁴ results of tonsillectomy, length of stay in the hospital, age at which signs of circulatory insufficiency developed, cause of death, postmortem findings, prognostic^{5, 6, 7} significance of the number and type of damaged valves and skin tests.

A complete physical examination with special regard to the heart was made. The diagnosis must include a decision as to whether there is heart disease; whether it is congenital or acquired; what lesion exists and to what class the patient belongs. The complete diagnosis is checked by more than one physician. Six foot roentgen ray plates are taken and measurements taken; occasionally electrocardiograms are made.

Table 1. *The Fundamental Classification of Patients With Heart Disease*

ORGANIC HEART DISEASE

Class 1. Patients with organic heart disease able to carry on ordinary physical activity without discomfort.

Class 2. Patients with organic heart disease unable to carry on ordinary physical activity without discomfort.

A. Activity slightly limited

B. Activity greatly limited

Class 3. Patients with organic heart disease and with symptoms or signs of heart failure when at rest, unable to carry on any physical activity without discomfort.

Class E. Possible Heart Disease: Patients who show abnormal signs or symptoms referable to the heart but in whom the diagnosis of heart disease is uncertain.

Class F. Potential Heart Disease: Patients without circulatory disease whom it is advisable to follow because of the presence or history of an etiologic factor which might cause disease.

TREATMENT OF THE HEART⁸

Once heart disease is established, information as to what the heart can do is of more value as a guide to treatment than the sounds it produces. If there is decompensation rest must be enforced until symptoms have disappeared. We believe one long stay is preferable to several short ones for it enables the heart to get farther away from the stage of decompensation. The principle to be kept in mind is to give long-continued rest under observations as the only hope of preventing a recurrence of decompensation. There is one drug which will help the heart do its work, i. e., digitalis.

If the symptoms are not too severe, if the home conditions are favorable and good cooperation can be obtained from the mother or if the child is excessively nervous or timid, hospital care may not be the best solution. Certain children may be cared for as well or better in the home. A considerable number of children are given rest in bed at home for a few weeks with good results. When home rest is attempted the day's routine must be prescribed in the fullest detail. If the symptoms are mild the amount of rest which each child needs must be decided for each case upon its merits. A rest after the mid-day meal with the windows wide open is required.

The amount of exercise allowed should be definitely prescribed. Most of the children with organic heart disease are able to be up and about and can walk easily but should not run or climb stairs rapidly. Children who have lesions of the heart of a degree to give symptoms on exertion are urged to stop after each flight to rest until they breathe normally and must not run or play violent games. Many children with heart disease are not appreciably injured by play. Those with little cardiac reserve soon learn how much they can do without discomfort. Most of our children attend school, climb stairs and run with no ill effects. We have found no simple and easily applied functional test for cardiac efficiency. How to measure the exercise tolerance is at present one of the greatest needs.

The rate and size of the heart, the character of the apex impulse and the general aspect of the child before and after mild exercise give a fairly good impression upon which advice may be given.

Every detail of the child's life must be laid out; for example, the time allowed for study, sleeping, exercise and amusement. When patients are boys the most difficult thing to

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regulate is the amount of exercise. The fundamental principle is that there should be no prolonged strain. Football, swimming and all competitive games must be interdicted. Mild exercise, like horseback riding, walking and golf, are allowable. When the patients are girls, much dancing must be prohibited. It is important in endeavoring to prevent overstrain not to go to the other extreme and not allow sufficient exercise. Proper exercise is most beneficial in that it not only keeps up the general nutrition but keeps the muscles, including the heart muscles, in good condition.

Boys should be trained for some occupation which does not demand too hard strain, preferably one which requires some exercise and much out-of-door life. Too sedentary a life is almost as bad as too active a life.

IMPROVEMENT OF NUTRITION

This is our best means of combating the dangers of heart disease as by improving the general nutrition we can be assured the nutrition and growth of the heart muscle will be improved. Many children with heart disease are undernourished. We have found that improved heart action regularly goes with a good gain in weight and that few children whose hearts do badly can be made to gain or grow normally.

Methods Used in Attempting to Improve Nutrition Regulation of Hygiene and Diet.—If a child can be made to eat proper food and live a life correct in its hygienic details he will be healthy and will gain and grow, provided he has not too serious an organic disease. The correction of the hygiene is no simple matter. Poverty, ignorance, poor food, bad racial habits of living, bad housing, crowding indoors and outdoors, late hours, playing in the street at night, insufficient light and air, all contribute to the difficulty.

PORTALS OF ENTRY

The removal of portals of entry may be considered the first step in the treatment of heart disease and the original source of infection should be eliminated if possible. Many children are not in fit condition to undergo tonsillectomy when first seen, either because of acute chorea or rheumatism, poor heart action or marked undernutrition. To subject the child to the shock of an operation when he is thin and pale with a heart that is barely holding its own may strike him a blow from which he will recover with difficulty. It is true that some children cannot be made to gain until the tonsils are removed but they are the exceptions.

The weight curves have shown definitely that the loss of weight which is almost inevitable after tonsillectomy is apt to be larger and is recovered more slowly if tonsillectomy is done when the child is in bad condition.

A heart once damaged is more susceptible than a normal heart to fresh injury by infection. Not infrequently a "bad cold" or "sore throat" will change a heart that is improving to one that does badly.

Every patient with organic heart disease should take every possible precaution to avoid new infections. They should get plenty of rest, stay in fresh air as much as possible but avoid exposure to extremes of heat and cold, eat simple well cooked food and avoid contact with other sick people.

SYMPTOMATOLOGY

The symptoms assumed to be associated with the child with cardiac disease have been listed and an effort made to detect the exciting factors that may have influenced the return or elongation of the disease.⁹ Some children may have six or more rheumatic symptoms and others show only one or two definite complaints. Rheumatic fever is usually accompanied by a fever and painful joints, as follows: Tonsillitis, 70 per cent; rheumatic fever, 30 per cent; fatigue, 45 per cent; anorexia, 35 per cent; epistaxis, 20 per cent; pallor, 25 per cent. Chorea was not considered as a manifestation of rheumatic infection.

Incidence of preceding infection is as follows: Tonsillitis and recurrent sore throat, 70 per cent; recurrent colds, 10 per cent; dental infection, 30 per cent; otitis media, 10 per cent; cervical adenitis, 17 per cent; scarlet fever, 15 per cent; influenza and measles, 3 per cent.

McCulloch and Jones¹⁰ have shown that an infection of the upper respiratory tract is quite likely to precede a recrudescence of the rheumatic process.

Onset.—Beginning with the preschool age the curve gradually rises until the age of six and remains high up to the age of ten and then gradually declines.

An analysis of the clinical course of the disease showed the various manifestations, polyarthritides, growing pains and pain in the joints, occurred interchangeably and were not directly related to the duration of the disease or the ultimate type or degree of involvement of the heart. A study of the recurrence of infection shows the average number of attacks decreases as the age of

the child increases. The number of consecutive years of freedom from infection tend to increase as adolescence is reached.

The first three years after the initial attack was the period of the greatest hazard. During the three years 49 per cent had one or more recrudescences of their symptoms. During the period of from three to five years after the onset the number of recurrences were lessened by 40 per cent. From five to ten years after the onset only 25 per cent had recurrences. It would appear that after five years has passed the prognosis for ultimate recovery and freedom from recurrences is definitely improved.

A consideration of the interval which elapsed between the first manifestation noted and the first recurrence showed that in one half of the cases relapses occurred within a year, two thirds in two years and four fifths in three years. The greatest incidence of recurrence within one year was observed in children who were first infected

after the age of 10. It is possible that there is a critical period for children with rheumatic infection.

Age of Primary Manifestation.—Many primary manifestations of rheumatic fever go unrecognized and the discovery of heart damage a number of years later may be erroneously considered as the time of primary manifestation. Children subject to rheumatic infection may be divided into three groups:

1. Primary infection seems to induce relative immunity toward further reactivation and thus the primary manifestation is the one and only manifestation of the disease except the resultant cardiovascular damage.

2. No evidence of rheumatic activity between the reactivations; but reactivations may be frequent until the child succumbs to an especially virulent one or between the ages of 12 and 16, appears to develop a relative immunity to the disease and is left with the resultant cardiovascular damage practically stationary.

3. Resistance to the infection seems low and the child is overwhelmed and dies within one or two years; runs a constant febrile course; maintains constant evidence of a low grade activity with a toxic death in from three to five years, or the gradual development of an apparent immunity at or just after puberty.

Age Incidence and Seasonal Incidence.—In most cases the onset was between the ages of 8 and 10 years. After this the frequency of primary attacks dropped rapidly. Reactivation occurred in 60 per cent of the cases over 10 years of age.

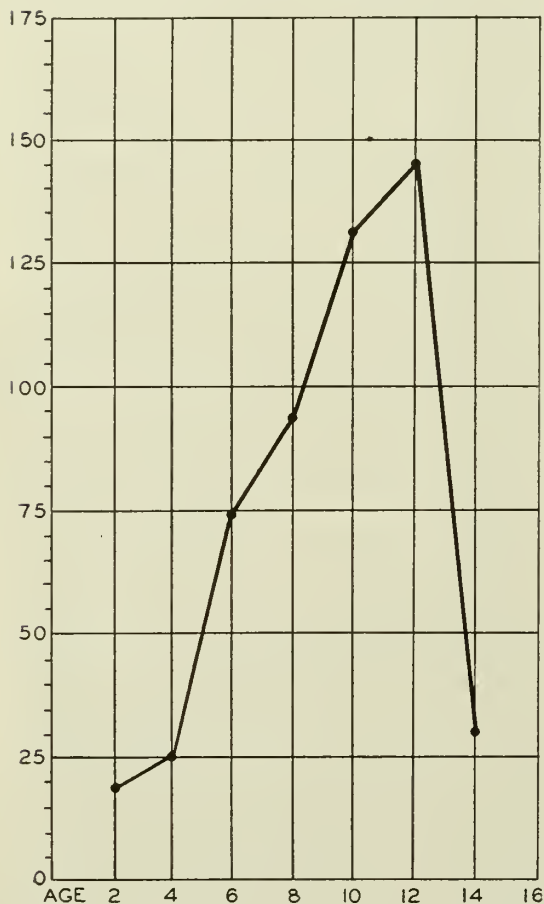
Seasonal Incidence of Primary Manifestation.—The disease is most common during the late winter and early spring. This corresponds with the period of worst weather conditions and the most frequent infections of the upper respiratory tract.

Familial Incidence.—Among the 458 children we found 105 cases in whose family there were two cases of rheumatic disease; 20 cases in whose family there were three cases of rheumatic disease; 10 cases in whose family there were four cases of rheumatic disease.

The disease was more frequent in girls than in boys, 275 out of 458.

Chorea^{11, 12} should not be taken as an indication of rheumatic infection without other rheumatic manifestations. Chorea does not start acutely in an apparently stable individual; the onset is usually insidious the

AGE INCIDENCE OF CARDIAC DISEASE
IN 458 CHILDREN



child being nervous, irritable and abnormal for weeks or months before the acute manifestation which is very different from the history of the ordinary infection. Psychic trauma seems intimately associated with the onset.

Ninety per cent of chorea¹³ patients with rheumatic arthritis developed endocarditis; 90 per cent of chorea patients with no rheumatic manifestations showed no cardiac involvement.

Tonsillectomy had no effect upon the course of chorea but tonsillectomized patients less frequently developed endocarditis.

When chorea is associated with a rheumatic¹⁶ infection the subsequent endocarditis is often more severe. Endocarditis is by no means an invariable complication of chorea but almost exclusively a sequel of true rheumatic and tonsillar infection.

TONSILLITIS: EFFECTS OF TONSILLECTOMY

In considering the results of tonsillectomy we must consider (1) Does the presence or absence of the tonsils influence the severity of the disease as reflected in the mortality rate? (2) Does the presence or absence of the tonsils influence the likelihood of recurrences?

It is quite generally accepted that there is a relationship between an initial infection in the tonsils and a subsequent rheumatic manifestation.

A clear throat will predispose less to infection of the upper respiratory tract and we believe tonsillectomy is one of the important measures, providing the child's general condition is all right, although we have no proof that the absence prevents the primary manifestation or minimizes the recurrences. We advise tonsillectomy on all cases.

Sinus examination with careful transillumination and roentgen studies is advised; also care of the teeth and local and operative treatment.

There was a history of tonsillectomy and adenoidectomy previous to primary manifestation in 175 of the 458 cases, but of these twenty had sinus trouble and nineteen had dental infection. The mortality rate was 50 per cent less in children whose tonsils had been removed prior to the initial attack. Our impression is that recurrences were less after tonsillectomy.

VALVULAR DAMAGE IN RELATION TO PROGNOSIS

Our clinical impression is that the mortality depends more on the severity of the toxemia and the poor resistance of the host

than it does on the number or valves involved.

Table 2. *Deceased Children, Age of Death and Extent of Valvular Damage*

| Age at Death | Cases | Mitral Disease Cases | Mitral and Aortic Disease Cases |
|--------------|-------|----------------------|---------------------------------|
| 3 years | 1 | 1 | 0 |
| 5 years | 2 | 1 | 1 |
| 6 years | 2 | 1 | 1 |
| 7 years | 2 | 1 | 1 |
| 8 years | 4 | 3 | 1 |
| 9 years | 4 | 2 | 2 |
| 10 years | 8 | 4 | 4 |
| 11 years | 8 | 4 | 4 |
| 12 years | 6 | 3 | 3 |
| 13 years | 6 | 3 | 3 |
| 14 years | 2 | 1 | 1 |
| 15 years | 5 | 3 | 2 |

All these hearts were enlarged as compared to normal.²²

The presence of a diastolic murmur at the left of the sternum of a soft blowing character and easily differentiated from the course rumbling of mitral stenosis means aortic insufficiency has developed significant of rheumatic disorder of the aortic valves.

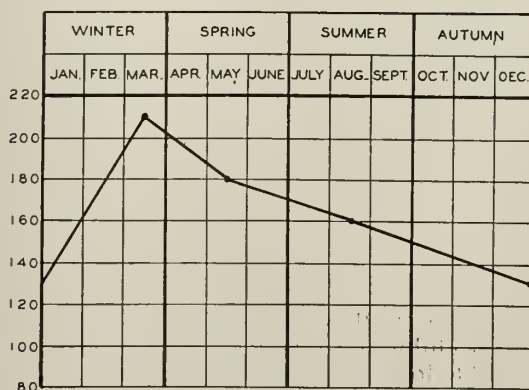
A low blood pressure particularly if associated with poor general nutrition is a bad prognostic sign, compared with high systolic pressure and increase in weight.

SKIN TESTS AND COMPLEMENT FIXATION

The fact that tonsillitis, which is frequently of streptococcic origin, and scarlet fever frequently precede the onset suggests that the individual has become sensitized to the streptococcus and a combination of the four tests were made on each patient. Test 1, complement fixation of their serum using the typical stain of Cecil as the antigen. Test 2, intradermal skin test with the same antigen. Test 3, complement fixation using the culture of streptococcus viridans isolated by Clawson¹⁸ as the antigen. Test 4, skin test to this same streptococcus viridans antigen.^{17, 19}

In the complement fixation test the tech-

SEASONAL INCIDENCE OF CARDIAC MANIFESTATIONS IN 458 CHILDREN



nic described by Burbank was strictly adhered to, ½ per cent sheep cell suspension being used, the antigen being diluted in .5 cc. normal saline. A control series without antigen was run; and most important is the point that the complement comes here from the complement of the patient's unheated serum, no guinea pig complement being used. Blood was drawn and prepared as for the Wassermann save that the complement was not killed.²¹

Hemolytic¹⁵ streptococcus skin tests were positive in 80 per cent of the cases as compared with 20 per cent in control cases.

CONCLUSIONS

1. It may be possible through familial incidence to ascertain what children are most susceptible and to institute a few preventive measures of which there is some knowledge at an early age and thus possibly obtain better results.

2. The common cold is of great importance (especially during the winter months) and may be the cause of a reactivation with a fatal outcome. Possible danger of colds, sore throats, and other infections should be explained and reiterated to the patient.

3. Although we have no positive proof that the routine removal of tonsils prevents primary manifestations or minimizes reactivations of rheumatic fever, we believe that a clear throat will predispose less to infection of the upper respiratory tract. A careful study of the sinuses is still justified in the type of child included in this study. Tonsillectomy is an important factor in preventing endocarditis.

Table 3. *Weight of Heart*

| Age Days | Grams | Age Months | Grams |
|-------------|-------|---------------|-------|
| 3 | 17 | 14 | 45 |
| 3-7 | 18 | 16 | 48 |
| Weeks | | 18 | 52 |
| 3-5 | 19 | 20 | 56 |
| 5-7 | 20 | 22 | 56 |
| 7-9 | 23 | 24 | 56 |
| Months | | Years | |
| 2-3 | 23 | 3 | 59 |
| 4 | 27 | 4 | 73 |
| 5 | 29 | 5 | 85 |
| 6 | 31 | 6 | 94 |
| 7 | 34 | 7 | 100 |
| 8 | 37 | 8 | 110 |
| 9 | 37 | 9 | 115 |
| 10 | 39 | 10 | 116 |
| 11 | 40 | 11 | 122 |
| 12 | 44 | 12 | 124 |

(Coppoletta²² and Wolback, *Am. Jour. Path.*, Jan., 1933.)

4. The mortality rate is nearly 50 per cent less in children whose tonsils had been removed before the initial attack.

5. The valve or number of valves involved

in rheumatic heart disease has little to do with prognosis as compared to the virulence of the infection, the resistance of the host and the number of reactivations.

6. Average time of manifestation is 10 years.

7. Familial incidence is as great as in tuberculosis.

8. The use of intravenous preparations of hemolytic streptococci with the hope of lessening hypersensitivity is still in the experimental stage but offers some hope.

9. Complement fixation may be used as a measure of the antibody content of serum of the patient but is not as reliable as the skin tests to indicate sensitivity.

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BIBLIOGRAPHY

1. St. Lawrence, William: The Family Association of Cardiac Disease, Acute Rheumatic Fever, and Chorea: A Study of 100 Families, *J. A. M. A.* **79**:2051 (December 19) 1922.
2. McIntosh, Rustin, and Wood, C. L.: Rheumatic Infections Occurring in the First Three Years of Life, *Am. J. Dis. Child.* **49**:835 (April) 1935.
3. Paul, J. R.: Age Susceptibility to Familial Infection in Rheumatic Fever, *J. Clin. Investigation* **10**:53-60, 1931.
4. Kaiser, Albert D.: Factors That Influence Rheumatic Disease in Children, Based on a Study of 1200 Rheumatic Children, *J. A. M. A.* **103** (September) 1934.
5. Coburn, A. F.: The Factor of Infection in Rheumatic State, Baltimore, Williams and Wilkins Company, 1931.
6. Bertram, Mary: Some Features of the Rheumatic Infection, *Brit. M. J.* **1**:496 (March 14) 1925.
7. Stroud, William D.: Ten Years' Observation of Children With Rheumatic Heart Disease, *J. A. M. A.* **101**:502 (Aug. 12) 1933.
8. Berger, Harry C.: Treatment of Rheumatic Diseases in Childhood, Annual Spring Symposium, Kansas City Southwest Clinical Society (April 19) 1932.
9. Ingerman, Eugenia, and Wilson, May G.: Rheumatism, Its Manifestation in Childhood Today, *J. A. M. A.* **82**:759 (March) 1924.
10. McCullough, Hugh, and Irvine-Jones, Edith: The Role of Infection in Rheumatic Children, *Am. J. Dis. Child.* **37**:252 (February) 1929.
11. Gerstley, Jesse R.: Chorea, Is It a Manifestation of Rheumatic Fever? *J. Pediat.* **1**:42 (January) 1935.
12. Schwartz, Herman, and Leader, Disney D.: Latent Cardiac Complications Following Sydenham's Chorea, *Am. J. Dis. Child.* **49**:952 (April) 1935.
13. Poynton, F. J.: Observations on the Nature and Symptoms of Cardiac Infection in Childhood, *Brit. J. Med.* **1**:249 (March 2) 1918.
14. Clawson, B. J.: Bacteriology of Acute Rheumatic Fever With an Experimental Basis in Animals for Vaccine Therapy, *Minnesota Med.* **14**:1 (January) 1931.
15. Collis, W. R. F., and Sheldon, Willifred: Intravenous Vaccines or Hemolytic Streptococci in Acute Rheumatism in Childhood, *Lancet* **2**:1261-1264 (Dec. 10) 1932.
16. Cecil, Russell L.: Discussion and Conference on Rheumatic Diseases, *J. A. M. A.* **99**:1022 (Sept. 17) 1932.
17. Swift, H. F.; Derrick, C. L.; Hitchcock, C. H., and McEwen, C.: Intravenous Vaccination With Streptococci in Rheumatic Fever, *Am. J. Med. Sc.* **181**:1, 1931.
18. Clawson, B. J., and Weatherby, M.: An Experimental Basis for Intravenous Vaccine Therapy in Chronic Arthritis With a Summary of Results Obtained in Patients, *Ann. Int. Med.* **5**:1447, 1932.
19. Wetherby, M., and Clawson, B. J.: A Study of Chronic Arthritis With Special Reference to Intravenous Vaccine Therapy, *Arch. Int. Med.* **49**:303, 1932. (The Work Is Discussed in Streptococcus Vaccination in Chronic Arthritis, *Minnesota Med.* **15**:559, 1931.)
20. Vaughan, Warren T.: Bacterial Allergy and Chronic Arthritis, *Virginia M. Monthly* **59**:7-11, 1932.
21. Nichols, E. E., and Stainsby, W. J.: Streptococcal Agglutinins in Rheumatoid Arthritis, Preliminary Report, *J. A. M. A.* **97**:1146-47 (Oct. 17) 1931.
22. Coppoletta, J. M., and Wolback, S. B.: Body Length and Organ Weights in Infants and Children, *Am. J. Path.* **9**:55 (January) 1933.

RELATIONSHIP OF LATE MENSTRUATION TO CARCINOMA OF THE CORPUS UTERI

ROBERT J. CROSSEN, M.D.
and
JOHN E. HOBBS, M.D.
ST. LOUIS

The relationship of late menstruation to corpus carcinoma is an important subject and one not yet clarified. Most gynecologists subconsciously feel that late continuation of menstruation into the period when the endometrium should be inactive indicates a tendency to erratic epithelial activity and hence to cancer. However, this idea has not as far as we have been able to find in the literature been clearly stated with definite facts to support it.

For some time we have been collecting data on this subject. The study of the material in hand indicates that prolongation of endometrial activity to the age of fifty shows a tendency to corpus carcinoma sufficient to call for immediate termination of such activity. While the material here presented indicates this tendency it is not large enough in amount to be conclusive on such an important matter. This is a preliminary report which we hope to supplement soon with more extensive data from various sources including life insurance statistics. It is hoped that this presentation will stimulate thought and investigation concerning this subject.

The study we have made to date is concerned with four points, viz.: (1) Age range of the menopause occurrence in women generally, i. e., the "normal" age range of the menopause. (2) Age of menopause in corpus carcinoma cases compared to normal cases. (3) Relationship of hyperplasia of the endometrium to adenocarcinoma of the fundus. (4) Treatment advisable in late menopause.

NORMAL AGE FOR MENOPAUSE

The term "menopause" or "menopause-age" may be used to designate either the period of years when menstruation gradually diminishes to cessation or the definite time when it stops. It is in the latter sense that the term is used in this discussion. Even this arbitrary and narrow limitation does not exclude all ambiguity, for the question arises as to whether a bloody flow in a particular case is or is not menstruation. Patients as a rule regard any vaginal bleeding as menstruation and make no distinction

between real menstruation and bleeding somewhat resembling it. Fortunately it is not necessary to make such a distinction in this inquiry. We are not taking up the question as to what constitutes real menstruation; we are only trying to define approximately a clinical symptomatic group distinguished by late intra-uterine activity evidenced by bleeding which patients usually designate as menstruation.

There is some objection to the use of the term normal for a large part of statistics on normal menopause ages is gathered from patients who, of course, are seeking medical aid for diseases from which they are suffering. There are other problems involved when one attempts to procure statistics on the average normal menopause age. In table 1 thirty cases of fundal carcinoma are tabulated in which there had been a definite menopause with a recurrence of bleeding some years later.

Table 1

| Age at Onset of Menopause | Age at Recurrence of Bleeding | Time Interval Between Menopause and Onset of Bleeding |
|---------------------------|-------------------------------|---|
| 50 years | 53 years | 3 years |
| 50 years | 53 years | 3 years |
| 53 years | 58 years | 5 years |
| 55 years | 60 years | 5 years |
| 48 years | 54 years | 6 years |
| 52 years | 58 years | 6 years |
| 59 years | 65 years | 6 years |
| 50 years | 57 years | 7 years |
| 51 years | 59 years | 8 years |
| 51 years | 59 years | 8 years |
| 48 years | 56 years | 8 years |
| 48 years | 56 years | 8 years |
| 51 years | 60 years | 9 years |
| 51 years | 60 years | 9 years |
| 41 years | 50 years | 9 years |
| 52 years | 62 years | 10 years |
| 50 years | 60 years | 10 years |
| 51 years | 62 years | 11 years |
| 51 years | 62 years | 11 years |
| 50 years | 61 years | 11 years |
| 45 years | 57 years | 12 years |
| 45 years | 59 years | 14 years |
| 52 years | 67 years | 15 years |
| 50 years | 65 years | 15 years |
| 50 years | 67 years | 17 years |
| 52 years | 72 years | 20 years |
| 50 years | 73 years | 23 years |
| 47 years | 70 years | 23 years |
| 42 years | 67 years | 25 years |
| 50 years | 75 years | 25 years |

As can be seen in the table the interval from the onset of menopause to the beginning of bleeding varies from three to twenty-five years. If now, for example, one were compiling statistics on the normal age for menopause and included from the above group only cases that had been free of bleed-

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ing for at least five years there would still be included as normal twenty-six cases that developed carcinoma later in life. Four of the cases were in their late seventies when the first recurrent bleeding occurred.

The question naturally arises in seeking a means of arriving at a normal age for menopause, as to what age a symptom-free woman must be before one can call her menopause a normal one. Arbitrarily the age might be set at seventy-five, but the reliability of such statistics would depend upon the ability of a woman seventy-five years of age to remember the time of an event occurring twenty-five to thirty years before.

The statistics for normal menopause ages in this study are taken from the work of Krieger who had a series of 2291 cases. It must be remembered that we do not know how many of the women used in this compilation of statistics developed fundal carcinoma after the statistics were published. We do not know how long they lived after their menopause dates were used in computing normal statistics. Those who died soon after this publication may have developed carcinoma had they lived to old age. These statistics are given in table 2 where they are compared with fundal carcinoma cases.

AGE OF MENOPAUSE IN CORPUS CARCINOMA CASES COMPARED TO NORMAL CASES

In our series there were eighty-nine cases of adenocarcinoma of the fundus. Of these fifty-six cases had had a definite menopause and the remaining thirty-three were still having periodic bleeding at the time of the first treatment. In table 1 the ages at which the menopause occurred in the fifty-six cases are compared with the menopause ages in the normal cases.

Table 2

| Age at Menopause | Fundus Carcinoma | Normal |
|------------------|------------------|--------|
| 36-40 | 2% | 12% |
| 40-45 | 4% | 26% |
| 45-50 | 30% | 41% |
| 50-55 | 60% | 15% |

It is evident from this table that 60 per cent of the carcinoma cases had a menopause at fifty or later while only 15 per cent of the normal cases had a menopause as late as fifty. In separating the ages to find what percentage of carcinoma cases had a menopause at forty-seven or later it was found that 79 per cent of the cases fell into this group. If the whole series of eighty-nine cases is considered we find that 71 per cent were forty-seven years or over at the time of the menopause or at the first treatment.

From these statistics limited though they

are we can state definitely that late menopause is more common in women who have adenocarcinoma of the corpus uteri. Whether the converse is true, i. e., adenocarcinoma of the fundus is more common in women having a late menopause, can only be determined by further comparison with statistics in large numbers of normal women.

RELATIONSHIP OF HYPERPLASIA OF THE ENDOMETRIUM TO ADENOCARCINOMA OF THE FUNDUS

Hyperplasia of the endometrium is a frequent finding on curettage in women who have a late menopause. The cause of hyperplasia we now know is due to some disturbance in the endocrine system causing an excess of theelin in the body.

In this series of adenocarcinoma cases there were a few that had had a previous curettement a year or two before the diagnosis of adenocarcinoma was made. Of these cases there were three in which the previous slides were available for study. These three cases had had a previous diagnosis of hyperplasia of the endometrium and the diagnoses were confirmed by a study of the slides. This striking demonstration certainly indicates that hyperplasia may be a predisposing factor in the causation of adenocarcinoma of the fundus. An interesting specimen of a double uterus in which one horn showed a senile hyperplasia and the other horn an adenocarcinoma of the fundus also lends weight to this contention.

TREATMENT ADVISABLE IN LATE MENOPAUSE

The statistics above show the striking fact that a preponderant proportion of cases with carcinoma of the corpus have had a late menopause. We feel though we have not sufficient facts as yet to prove it; that cases with a late menopause develop a much larger proportion of corpus cancer than do patients having an earlier menopause. Late menopause, especially when extending to the age of fifty, is a warning of a tendency to endometrial malignancy.

The problem in these cases is to stop the abnormal activity of the endometrium. This can be done by radical operation or by radiation. Unless there is some definite reason for radical operation, the choice of treatment is radium. Roentgen ray can be used but if it is a diagnostic curettage should always be done to eliminate an adenocarcinoma. A dose of 1200 to 1800 mg. hr. of radium should be adequate.

SUMMARY

1. There are certain pitfalls in gathering statistics on normal menopause which have

not been taken into account in the compilation of statistics in the present day literature.

2. The incidence of late menopause in cases of adenocarcinoma of the fundus uteri is about four times as high as it is in normal cases.

3. In our series, a study of the slides of previous curettages done in fundus carcinoma cases indicates that endometrial hyperplasia is an important predisposing factor in adenocarcinoma of the fundus. A study of such slides whenever possible will help to settle definitely the question as to the importance of endometrial hyperplasia as an etiologic factor in fundal cancer.

4. Late menopause, especially when extending to the age of fifty, is a warning of a tendency to endometrial malignancy and adequate treatment should be given to stop the aberrant endometrial activity.

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URINARY INCONTINENCE

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The bladder, a receptacle of remarkable adaptability, retains urine of varying concentrations under all manner of changing physical and mental conditions, from sudden blows to the quiet of sleep. It does however under certain circumstances fail of its function. The failure is one of two types; it either unduly retains or expels urine. That we may meet the problem intelligently, the circumstances surrounding these failures must be recognized in their variation from normal. The manner in which the bladder functions is no less exact and constant than that of the heart, for example. It is far more than a mere excretory organ responding only to a certain filling. Its function embraces two types of mechanics, involuntary and voluntary. The former concerns the viscus itself with its wall and internal sphincter of smooth muscle, allowing passive filling which from the standpoint of innervation requires a delicate balance between dilator and contractor nerve fibers in the same manner as the pupil of the eye reacting to the intensity of light. The smooth musculature under this involuntary control is in constant rippling motion (dilating and contracting) so that any outside force may be immediately taken up and thus not directly

transmitted through the fluid content to stimulate a bladder contraction.

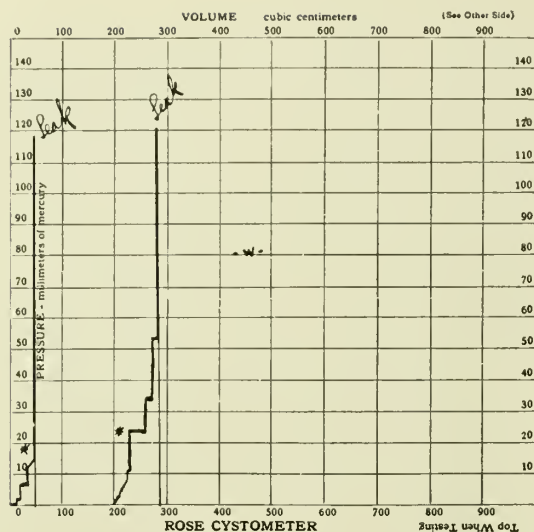
This viscus at its internal sphincter, which is a thickening of its own circular muscle layer, connects with a mobile tube, the urethra, which farther down is in turn closed off by the external sphincter located within the triangular ligaments. The external sphincter muscle is voluntary in its action as is the mobility of the urethra. It acts by direct compression within the triangular ligaments. This muscle closes off by direct pressure and is assisted by the mobile urethra which allows disalignment of the internal and external sphincter openings thereby requiring less direct pressure.

The urethral mobility therefore constitutes a definite part of the external or voluntary sphincter. Its movement, caused by contraction of the levator ani muscle, assists in voluntary retention of the urine by drawing the perineum and urethra upward; and in expelling urine by depressing the perineum and urethra. In these movements the alignment of the internal and external sphincter changes.

Briefly, I believe the mechanism of urination to be (1) a gradual filling of the viscus until (2) the weight of the fluid institutes a mild involuntary contraction of the bladder muscle, the resultant pressure being recognized within the posterior urethra (N. Pudendus). (3) Should this stimulation be responded to, the third step is the voluntary downward movement of the perineum to align the internal and external sphincter openings. (4) Associated with this movement there is contraction of the trigonal muscle which bridges from the posterior urethra to the trigone. This contraction forces down the lower portion of the internal sphincter to the level of the posterior urethra and trigone. (5) Urine now entering the posterior urethra flows, slowly at first, through the entire urethra from which the afferent stimulation goes up to return through the involuntary nervous system stimulating the bladder to more forceful contraction. (6) As this contraction takes place the wall thickens and the force becomes greater until the bladder is emptied. (7) The contractions of the prostatic muscle, the bulbocavernosum, ischiocavernosum, perineii and levator ani muscle now bring about the terminal ejections from the urethra after and during which the bladder wall relaxes, with however firmly closed internal sphincter.

For clinical purposes it is quite possible

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Read at the 78th Annual Meeting of the Missouri State Medical Association, Excelsior Springs, May 6-9, 1935.



to simplify these synchronized acts into two chief factors, viz.: expulsive force of the bladder wall, and resistant power of the sphincters, the chief active resistance of the sphincters, of course, being the two factors described as constituting the action of the voluntary or external sphincter.

Cerebral influence is one of inhibition.

The greatest difficulty in the past in evaluating bladder function has been that the physiological experiments found such diverse pressures with associated capacities that it seemed to be generally believed that the bladder followed no definite physiological rule. The myogenic factor was the one overlooked. The bladder wall when subjected to greater work by reason of an increasing outlet obstruction becomes thicker (hypertrophic or compensated) to the in-

creased work, exactly as any other muscle of the body, from the arms of the pugilist to the stomach wall of the stenosed pylorus. It acts as does the heart muscle, compensates and then decompensates, when it can no longer meet the increased demands.

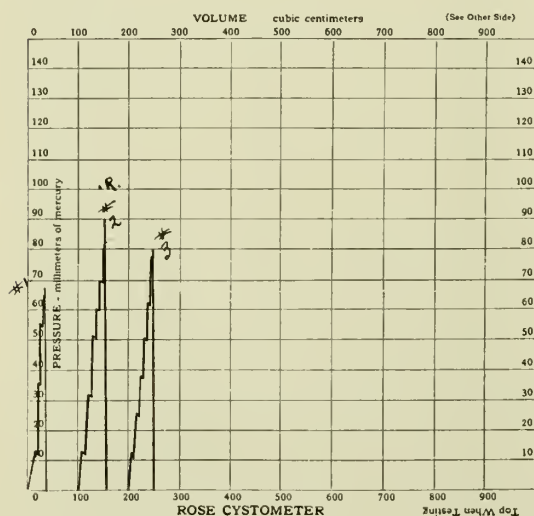
The increase in resistance causing the bladder wall to thicken may be a physical obstruction, such as prostate or urethral stricture. It may be physiological, such as spasm of the external sphincter, or we may have a paralytic external sphincter. In the latter case the mobility of the urethra will be interfered with.

Depending on the type and degree of outlet resistance, just so much will we have a change in the strength or expulsive force of the bladder wall. Bladder wall compensation will stop when increasing resistance stops, providing the obstruction does not become sufficiently complete to cause full dilatation and so a paradoxical incontinence.

A normal bladder when full has a thin and therefore markedly weakened wall (diminished expulsive force). A normal bladder when empty has a thickened and therefore markedly increased expulsive force. Frequency of voiding small amounts simply by contracting and thickening the bladder wall permits greater frequency. Add infection to this and we increase in degree this vicious circle until it can develop into an incontinence more or less continuous, depending on other conditions present.

Incontinences are primarily divided into those in which there is some degree of recognition by the patient from the bladder standpoint itself, and those in which the incontinence occurs without associated bladder sensation. Diminished cerebral inhibition is a factor to keep constantly in mind in these analyses. Incontinence of urgency of urination is often temporary, rarely permanent upon removal of cerebral inhibition. In all cases of incontinence it is necessary for us to evaluate the expulsive power versus the resistance of the external sphincter.

Further considering the myogenic factor, an individual may have a hypertrophic bladder wall back of a prostatic obstruction the smooth muscle having compensated so well that the stream is not weakened in force. Infection now occurs and, in certain instances, the patient becomes tremendously toxic; as a result inhibition is removed and incontinence develops, partly because of the release of the inhibition and partly because the infection, by whipping up the force of the already too powerful bladder contrac-



tion, overcomes the resistant power of the sphincters. Such a status, depending on the type of bladder, can occur with or without a residual urine.

In neurogenic bladders there may be marked diminution in the tone of the bladder wall as well as in the tone of the outlet and so incontinence occurs. Or there may be loss of tone of the sphincter muscles with no change in the bladder wall causing marked incontinence. Again, there may be increased spasticity of the sphincter with changes in the bladder wall similar to those seen in obstruction by an enlarged prostate and in which the same physiological changes occur; that is, the bladder wall becomes stronger and stronger until it is able to overcome this obstruction. This type bears a retention urethral catheter very badly while all other neurogenic bladders as a rule bear a catheter well.

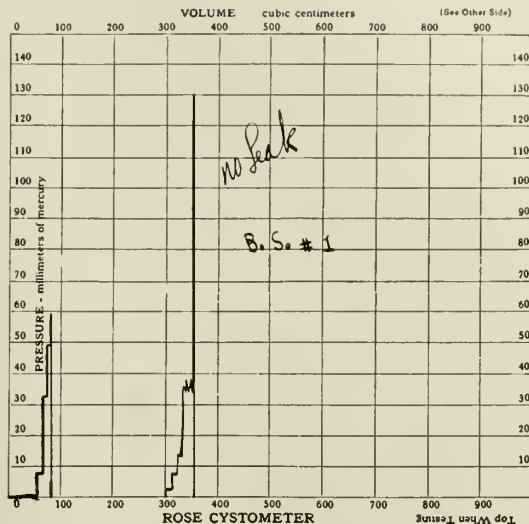
Bladder capacities vary in individuals of the same age and size due, I believe, to varying basic or inherent innervations. Laying aside our uncertainties as to sympathetic and parasympathetic systems, let us consider that there are nerve fibers which allow relaxation of the wall and closure of the internal sphincter, and another set of fibers which have the opposite function. The former function is now considered sympathetic and the latter parasympathetic in action. In other words, the sympathetic action allows passive bladder filling and the parasympathetic action causes active bladder emptying.

A large capacity bladder would therefore be spoken of clinically as a sympathetic overbalance type and a small capacity as a parasympathetic overbalance type. Theoretically, it is possible to have an overflow bladder as a result of undue sympathetic influence. The following case makes it seem possible to have an incontinence as the result of an undue parasympathetic stimulation this stimulation being characteristic in that there is no neurological disease to be treated to relieve the incontinence. For further elucidation I present the following reports briefly.

REPORT OF CASES

Case 1. W., aged 23, female, college graduate. Chief complaint, bed-wetting all her life. Past history, pyelitis when 10 to 12 years old. No associated rectal trouble. (Suggests cystitis as a factor in incontinence.) Family history, negative.

Present Illness: Onset during infancy with incontinence two to three times at night and occasionally during the day. Patient is highly intelligent and of normal nervous reaction. All treatment, such as



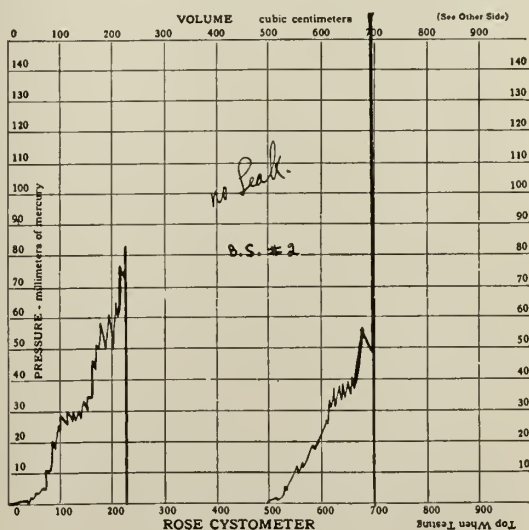
diminished fluid intake, waking at night to void, etc., has failed. Temporary relief by full doses of tincture belladonna. General health good. No menstrual trouble. Incontinence not influenced by any known factor. Physical examination showed nothing abnormal excepting nystagmus to a marked degree and pin point pupils. The urine was normal and Wassermann test negative. Neurological examination: There were no sensory skin changes; long tendon reflexes normal; rectal sphincter normal in tone.

Cystoscopic Examination: Bladder capacity to pain and fixation of the bladder wall 250 cc. Bladder normal in appearance excepting coarse trabeculations.

CYSTOMETROGRAM 1 (W)

Cystometrogram: Tremendously small capacity and high pressure. Obviously, such a quick forceful contraction upon stimulation of a desire to void would overcome even a normal sphincter resistance and result in incontinence. This is a parasympathetic overbalance type as are the pupils of the eye.

Treatment: Logically is to reduce the expulsive force which can be done by increasing the bladder capacity. To this end we used hydraulic distention,



gravity method. Four treatments have proved sufficient to distend the bladder to 500 cc. capacity with which the enuresis ceased. The bladder will again contract to small capacity in a period of weeks or months when the overdistention must be repeated.

Case 2. R., male, aged 76. Definite history of bladder obstruction for several years. Onset of fever of unknown origin prompted bladder catheterization following which incontinence developed. At this time the patient went to Barnes Hospital where a diagnosis of Malta fever was made by the medical service. (Dr. Barr.) The catheterized urine shows very few pus cells and an occasional coccus; no residual urine. Cystoscopic examination shows a collar type of prostatic enlargement, coarse trabeculations and mild congestion of the mucosa.

CYSTOMETROGRAM 2 (R)

A brief cystometric analysis presented as an example of incontinence occurring upon release of cerebral inhibition in the presence of a hypertrophic bladder wall developed to a sufficient degree to overcome a considerable prostatic obstruction.

Cystometric examination shows a typical hypertrophic wall; that is, high pressure, small capacity and exaggerated sensations. After these procedures the incontinence became worse due to the irritation just as it started following the urethral catheterization. This incontinence subsided through stages of incontinence of urgency of very small amounts to urgency of urination of as much as 200 cc. with no incontinence.

Treatment of this particular case obviously was to avoid any bladder or urethral trauma and to reduce the irritability of the infection by the use of non-irritating urinary antiseptics taken by mouth. Upon the return of normal cerebral inhibition through improvement of the Malta fever one would expect incontinence to cease. In fact, in time the prostatic obstruction should develop a residual urine. Similar types of incontinence are occasionally seen associated with bladder stone, carcinoma of the bladder, etc.; that is, contracted bladder wall plus sepsis.

Case 3. B. S., male, aged 14, with a spina bifida, seen at Shriners' Hospital, St. Louis, with total incontinence, both urine and bowel. The bowel, however, could be controlled by two enemas a day leaving the urinary incontinence the chief complication to be considered in remedying an associated congenital hip and club foot. It was found that the bladder carried

no residual urine, and by cystometrogram that he had a very small capacity and high pressure. Obviously, to remove the nerves of dilatation, that is, a presacral nerve resection, would increase the patient's symptoms by further decreasing the capacity and raising the intracystic pressure.

Treatment: Hydraulic distention was begun and, at the onset, the filling to pain of suprapubic overdistention was 120 cc. After three weeks the capacity had been built up to 220 cc. and at this time, by awakening the patient three times at night and discontinuing water after 5 o'clock, we had changed his total incontinence to an occasional incontinence of two to three times a day. With this improvement the patient could be discharged from the hospital to carry on his out-patient work for his orthopedic conditions and to have his bladder distended twice a week. Hydraulic distention in this case simply increased the capacity and did not lower the pressure.

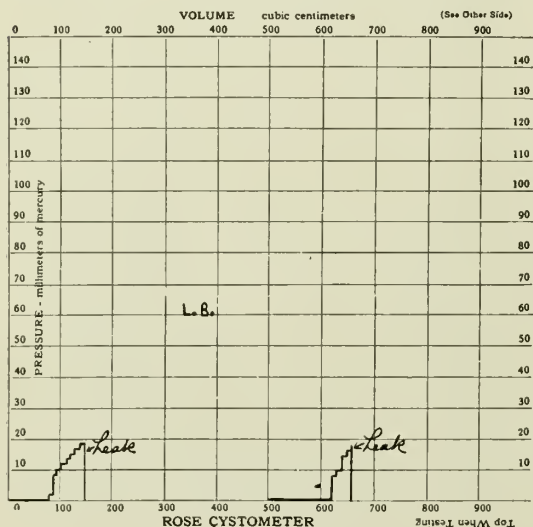
CYSTOMETROGRAM 3 (B. S.). CYSTOMETROGRAM 4 (B. S.)

Cystometrogram 3 (No. 1 on this case) was taken before hydraulic distention was begun and shows a very small capacity and high pressure associated with complete incontinence. Cystometrogram 4 (No. 2 on this case) shows an increased capacity but very high pressure, this bladder function now associated with incontinence two to three times a day. The other factors in the control of his incontinence had been instituted before his hydraulic distention and therefore cannot be considered as the chief factor in the control of the incontinence after distention.

Applying our cystometric findings to an understanding of his bladder function we find that the incontinence was due to a thick, powerful bladder wall above a sphincter of too low resistance. Continuous bladder distention and more nearly reestablishing a balance between the bladder wall expulsive force and the sphincter resistance should still further correct the incontinence. In this case we found an anesthetic urethra; in fact, anesthesia over the skin areas supplied by the first to the fifth sacral segments. When hydraulic distention is stopped and the bladder allowed to contract more and more over the weak neurogenic outlet, we should again see reduced capacity with associated high intracystic pressure. At such time, incontinence would very likely return.

Case 4. L. B., male. Cystometriographic explanation of incontinence following transurethral prostatic resection is very simple; namely, that we reduce the sphincteric resistance and, in some cases, have a hyperplastic bladder wall which has developed to overcome the prostatic obstruction thus creating a marked imbalance between expulsive force and sphincter resistance. When, in such cases, after operation, the urethral catheter is removed the bladder wall expulsive force exceeds the sphincter resistance and incontinence may result. Depending upon the degree of this imbalance, we shall either have transient or permanent incontinence. In the case presented, incontinence did not occur in bed or when sitting and was partial when standing. The external sphincter can be seen with the urethroscope and apparently functions perfectly. The prostatic canal and internal sphincter are coned and the internal sphincter is undoubtedly damaged.

The treatment that suggests itself is hydraulic distention to reduce the expulsive force of the bladder. However, in some of these myogenic cases with very weakened outlet, stimulating the wall by filling and emptying will only further increase the degree of incontinence. In such cases the use of a Cunningham incontinence clamp furnishes sufficient outlet resistance



so that the bladder wall dilates to a degree compatible with a marked lessening of the incontinence.

Cystometrogram 5 (L. B.) shows a contracted bladder wall in that the water flowing in goes up by step-like ascents; pressure is low because leakage takes place at the point marked; capacity is small because with the strongly contracted bladder wall with its weakened outlet, at 150 cc. the pressure is sufficient to force the water out as fast as it is pumped in.

3720 Washington Boulevard.

MINIMAL VISUAL REQUIREMENTS FOR SAFE AUTOMOBILE DRIVING

R. E. MASON, M.D.

ST. LOUIS

I first became interested in this subject about a year or so ago when I read in the morning paper of a patient of mine who had been sentenced to six months in the workhouse for the ninth violation of traffic laws while driving his light truck. The man in question was suffering from a luetic iritis in both eyes and his visual acuity was down to 20/200 vision in each eye. At his trial he made no mention of his eye disease to the judge. During the same year I was consulted by a chauffeur 21 years old for a minor injury to his eye. At the time of his visit to the office, from some remark he made in giving the history I was prompted to check his visual fields and found, to my surprise, a complete bitemporal hemianopia due to a tumor at the hypophysis. This man was engaged in driving a speed delivery wagon for a grocery company and was entirely unaware that he had such a thing as a brain tumor. With these two cases in mind, I addressed a questionnaire to the motor vehicle department of each of the various states in the Union, also the War Department and Civil Service Commission at Washington, requesting their respective visual requirements necessary to obtain a permit to drive an automobile. I received answers from forty-seven states. I will quote only briefly from the results of this questionnaire. It was interesting to note that nine states required no license at all and twenty others required no visual examination before permission to drive a motor car was obtained. In many states, however, no visual examination was required it only being necessary that the applicant declare himself free from any physical deformity which would incapacitate him from driving a car safely. The results of this

questionnaire will be omitted, except to quote the requirements from a few of the states which were outstanding.

There were two states, Ohio and Minnesota, in which blindness in one eye denies an applicant a permit to drive a machine. These two states also require at least 20/40 vision, or better, in each eye. In California you must have a minimum of at least 20/50 vision with or without glasses. Your color vision is taken but if faulty is not grounds for rejection. Connecticut only requires a 20/70 vision with both eyes, or a 20/50 vision in one eye, the other eye being blind. If glasses are required to obtain the above vision they must be worn when driving. Delaware has the most stringent law. In that state you must have a 20/20 vision in one eye, or a 20/30 vision in the better eye and at least 20/40 vision in the poorer eye. This is with or without correction. The District of Columbia requires a minimum of 20/40 vision with both eyes and a field of vision of 140 degrees or more. For an unrestricted license to drive in Maryland you must have a minimum visual acuity of 20/70 in each eye and a field of vision of 140 degrees, together with binocular vision. If the applicant has only 20/70 vision in one eye and not less than 20/140 vision in the other eye, a license will be issued restricting the holder to daylight driving only. The Civil Service, police and fire departments require 20/20 vision in each eye without glasses. New York State requires at least 20/40 vision with both eyes with or without glasses. Missouri, as you know, has no requirements either for professional chauffeurs or private individuals. These statistics give you a fair cross section of what the states are doing and a study of their laws shows no very close relation to any visual standards.

In order to determine the visual functions that would be necessary to operate an automobile safely I found a variety of factors to be determined; after a search of the literature of this and foreign countries I was surprised with the scarcity of precedent in arriving at this conclusion. The problems to be investigated were (1) the speed of the car; (2) the braking power or ability to stop the car after the brakes had been applied; (3) the visibility and size of the warning and danger signs; (4) the size of the objects to be avoided when driving; (5) the degree of illumination; (6) field of vision necessary in both eyes and in each eye separately, and binocular vision; (7) the size of the blind spots or scotoma caused by the

mullion posts of the car which interfere with the normal field of vision.

The first test carried out was to ascertain the effect that different degrees of visual acuity would have upon the ability to drive a machine, both in daylight and at night. Obviously, it would be impossible to find people of different degrees of vision to assist in this experiment, so the writer who has normal visual acuity for distance and near supplied himself with spectacles of plus lenses of different strengths which when worn would fog his vision down to 20/200; and other pairs to 20/100 vision, 20/70, 20/50 and 20/40 vision. In order to contract my field of vision down to less than normal limits, which I have, I provided myself with spectacles with the periphery of the lens painted with an opaque paint which when tested on the perimeter one pair would cut down the temporal field of each eye to 30 degrees and another pair cut down the temporal field to 45 degrees.

The first test conducted was for visual acuity. It was made on a bright afternoon using as a target the regulation boulevard "STOP" sign which is made of metal, painted with yellow background with the word "STOP" painted in red. The letters are 5 inches in height and 1 inch in width. We also used the regulation U. S. Highway road sign which is white background with black letters 5 inches in height. With a 20/20 vision in each eye the stop sign as well as the word "Stop" could be seen distinctly at 255 feet, both eyes open. With 20/30 vision in each eye it was visible at 200 feet. With 20/70 vision it was visible at 100 feet, 20/100 vision at 75 feet, and 20/200 vision at 50 feet.

Testing out the headlights of my own car, which were found to be legal, the same tests were tried out on a dark night. With 20/20 vision in each eye the sign could be seen at 150 feet; the word "Stop" could first be read at 75 feet. With 20/70 vision the sign faded out at 25 feet. Where the word "Stop" was composed of glass disks, known as cat's eyes, the word became visible at 300 feet with 20/20 vision. The next test was also made at night. We attempted to determine the distance at which a man dressed in blue clothes and stationed directly in the path of the headlights would become visible to the driver of the car. For this test a lieutenant of the police department, dressed in his blue uniform, kindly consented to become the target. With 20/20 vision in each eye and the policeman facing away from the car so that his face was not visible we first

could see him at a distance of 150 feet from the machine. With our vision fogged down to 20/70 vision in each eye he came into view at 78 feet. With a white handkerchief pinned on the back of his coat he was visible at exactly twice the distance, or 300 feet, for normal vision and 138 feet for 20/70 vision. This clearly shows the danger of walking on a highway with dark clothes at night.

Referring to an engineering bulletin on illumination we found that on a bright sunny afternoon we have 8000 foot candles of illumination at 100 feet in front of the car. At night, with legal headlights at 25 feet in front of the car, you only have 6 foot candle and at 100 feet in front of your car only 1 foot candle of illumination. This explains the vast difference of visual acuity tests in daylight as compared to night.

The next most important function for visual requirements is the field of vision. Normally the field of vision with both eyes open and directed forward and measured on the horizontal arc is 190 degrees. A person who has only one eye has normally 60 degrees toward his blind side and 95 degrees toward his seeing side, or a total of 155 degrees for the one eye. Individuals with only one eye equalize their fields by slightly turning the head toward the blind side which gives them about 75 degrees to the right and the left. We found that when driving along a straight highway a field of only 60 degrees was necessary to get the full width of the road, but an entirely different field is necessary at street intersections; and this is where the great majority of automobile accidents occurs. An ordinary windshield gives an average field of 20 degrees to the left for the driver and 60 degrees to the right. The left upright support, or mullion post, causes a blind spot of from 10 to 15 degrees on the left side and a blind spot of 7 degrees results from the corner post on the right. Thus, a person with full fields in both eyes may view the full width of the street at both street intersections with safety, but a person having only his right eye and a normal field is handicapped on seeing cars coming from a left intersection, although he still has a certain margin of safety. With a temporal contraction in both eyes down to a total of 125 degrees or less it was found impossible to see quickly cars approaching from either the left or right street intersection when the driver was looking straight forward. A driver having only his left eye is found handicapped by the position of the rear vision mirror showing only cars which are following behind and on the right side.

From a bulletin published by a reliable insurance company in 1934, they found that with 100 normal drivers it required one fourth of a second reaction time before the driver could apply his brakes after seeing a danger signal. They found the following speed and braking tests:

| Speed Per Hour | Speed Per Second | Distance Traveled in $\frac{1}{4}$ Second Reaction Time | Distance Traveled After Brakes Applied on Dry Pavement | Total Distance Traveled |
|----------------------|------------------------|---|--|-------------------------------|
| 25 mi. per hr. | 37 ft. | 9 ft. | 31 ft. | 40 ft. |
| 35 mi. per hr. | 51 ft. | 13 ft. | 61 ft. | 74 ft. |
| 45 mi. per hr. | 66 ft. | 17 ft. | 101 ft. | 118 ft. |
| 50 mi. per hr. | 73 ft. | 19 ft. | 125 ft. | 144 ft. |

On gravel roads and wet slippery pavement, all the figures are proportionately higher.

Other factors entering into our conclusions, such as diplopia, muscle imbalance of high degree, color blindness and depth perception, are important but will not be commented upon at length in this paper. Taking into consideration all the various angles of these tests I offer the following as my conclusions:

CONCLUSIONS

A person to possess safe visual acuity for driving must have at least 20/40 vision in one eye with or without correction and his other eye should not be less than 20/100. A person possessing only one eye should have a visual acuity of not less than 20/30 vision and a normal field. In case the applicant is totally blind in his right eye but has a vision of 20/40 in his left eye, with or without glasses, and a normal field, a restricted license for daylight driving only would come within the safe limits. Where glasses are required to bring the vision up to 20/40 in either or both eyes a person should be required to wear them when driving. Color blindness while a great handicap in city driving should not necessarily be cause for rejection. No one should drive who has a field of vision less than 125 degrees in the horizontal arc with one or both eyes. Diplopia, of course, should be a cause for complete rejection. Persons with an aphacic eye, or after the surgical removal of an eye, should not be permitted to drive in a congested district for at least six months following such an operation. Professional chauffeurs and those driving public conveyances should have visual requirements of a much higher standard than has been noted in this paper.

410 Frisco Building.

CHRONIC APPENDICITIS

DIAGNOSIS AND TREATMENT

WARREN H. COLE, M.D.

ST. LOUIS

Although the term "chronic appendicitis" is widely used it is in reality inaccurate and a misnomer because a chronic infection with the same organisms that cause acute appendicitis rarely if ever occurs. However, common usage and the lack of a better term to apply to the mild chronic pain caused by such appendiceal lesions as fecaliths, strictures and adhesions probably justify the retention of the term.

Pathological Features.—Although chronic inflammation is rarely encountered in appendices, except as an expression of a healing and subsiding acute inflammation, such lesions as fecaliths, strictures due to previous inflammation, adhesions and kinks of inflammatory origin are frequently encountered. Moreover, every surgeon has had the gratification of removing such diseased appendices in patients with mild chronic pain in the right lower quadrant with complete subsidence of symptoms. Wilkie¹ has emphasized the importance of obstruction of the lumen of the appendix (particularly by fecaliths) in the pathogenesis of acute appendicitis. Fecaliths are likewise capable of producing "chronic appendicitis" apparently because of the obstruction produced in the lumen and not because of the bacteria and fecal material in the fecalith. In a like manner, a stricture caused by previous acute inflammation or perhaps by local involutional atrophy, may be responsible for obstruction of the lumen, particularly when inspissated fecal material becomes lodged in the lumen distal to the constriction. Helwig² has called attention to the importance of "chronic appendicitis" by a recent pathological study of 648 appendices removed at operation performed primarily for appendicitis. Only 44.4 per cent of this group was acutely inflamed, although 10 per cent showed evidence of a receding infection. Fourteen per cent presented no abnormality and an equal number revealed nothing more than an involutional atrophy. The remaining 18 per cent was partially obliterated due presumably to previous infection. Conforming to the experience of others, a large percentage of the patients in the latter three groups were probably not relieved by appendectomy. The obvious cause of failure to obtain a cure in

¹Read at the 78th Annual Meeting of the Missouri State Medical Association, Excelsior Springs, May 6-9, 1935.

²From the Department of Surgery, Washington University School of Medicine, the Barnes Hospital and the Washington University Clinics.

these patients lies no doubt in an erroneous diagnosis. Acute inflammation of the appendix may subside with little or no residual damage, but a local constriction due to scarring is not uncommon and may be responsible for the development of another acute attack, or occasionally be the cause of mild chronic pain due presumably to obstruction of the lumen. Involutional atrophy may be local and because of the constriction may exert a similar influence in the pathogenesis of acute or "chronic appendicitis." Diffuse atrophy of the appendix with obliteration of the entire lumen, however, is a normal physiological condition found frequently in elderly people and is not to be considered pathologic.

A few years ago Masson³ described a neuromatous tumor in the appendix originating in the sympathetic nerves. Since then Hosoi⁴ has reported finding 195 instances of this type of tumor in 344 consecutive appendices not showing evidence of acute inflammation but removed because of right sided abdominal pain. Additional data may support the supposition that such tumors are important factors in the production of appendiceal pain. If not, the profession must be careful lest these tumors be used as alibis to justify the removal of appendices not showing significant disease.

There are numerous lesions of the appendix including mucocele, carcinoid, etc., (see table 1) which are capable of producing pain

Table 1. *Lesions* of the Appendix Which May Produce Chronic Pain in the Right Lower Quadrant*

| |
|--|
| Fecalith |
| Stricture or partial obliteration (due to previous inflammation or involutional atrophy) |
| Adhesions or kinks of inflammatory origin |
| Miscellaneous lesions: |
| Sympathetic neuroma |
| Fibroplastic proliferation |
| Carcinoid |
| Foreign body |
| Obstructive congenital bands |
| Carcinoma |
| Mucocele |
| Tuberculosis |
| Actinomycosis |
| Parasites |

* Although the manifestations produced by the various lesions mentioned above are very similar it is perhaps appropriate to include only the first 3 in the group designated as chronic appendicitis.

indistinguishable from the mild chronic pain produced by fecaliths and strictures. The pain may result from obstruction of the lumen, but perhaps more frequently is caused by distention of the appendix, chronic infection (e. g., actinomycosis, tuberculosis) or even by obstruction of the blood vessels and lymphatics.

Clinical Manifestation and Diagnosis.—The most constant and valuable symptom of "chronic appendicitis" is pain in the right

lower quadrant and occasionally in the epigastrium and right upper quadrant. Pain which is inconstant, shifting for example to the left side, radiating posteriorly or downward to the floor of the pelvis, is rarely of appendiceal origin. Chronic appendiceal pain may be so constant as to be present almost daily or may be entirely absent for weeks at a time. Nausea may be present but vomiting is unusual. Constipation may or may not be present. Not infrequently the patient complains of a discomfort or dull pain in the epigastrium, presumably caused by pyloric spasm, which is relieved by food. (See case 2.)

Examination should reveal tenderness over the region of the appendix or cecum and occasionally over the epigastrium or liver. The presence of tenderness elsewhere usually points to other lesions and demands a thorough examination. Fever and leukocytosis are absent. The paucity of positive findings is one of the features which makes the diagnosis of "chronic appendicitis" so uncertain. The roentgen ray is occasionally helpful. A gastro-intestinal series (barium meal and enema) may reveal irregular filling of the lumen of the appendix because of the presence of fecaliths or strictures. Localization of the tenderness over the appendix is likewise significant. Lack of visualization should not be considered evidence of a chronically diseased pathological process. It should be emphasized that a diagnosis of chronic appendicitis is difficult to make roentgenologically and should be ventured only by capable roentgenologists.

Differential Diagnosis.—As noted in table 2,

Table 2. *Diseases Which May Be Confused With "Chronic Appendicitis"*

| |
|--|
| Constipation with "spastic colitis" |
| Adnexal disease in women |
| Diseases of kidney and ureter (nephroptosis, calculus, infection, ureteral kink) |
| Diseases of the cecum (tuberculosis, carcinoma, actinomycosis) |
| Chronic cholecystitis |
| Peptic ulcer |
| Intestinal allergy |
| Failure of absorption of carbohydrates |
| Mucous colitis |
| Neurosis? |

the lesions capable of producing pain in the right lower quadrant are so innumerable as to demand accuracy in diagnosis, especially since there is such a disgracefully large percentage of appendectomies performed without relief of the pain for which the procedure was done. Because of the relatively few reliable signs and symptoms of chronic appendicitis it is necessary that the diagnosis be made chiefly by exclusion. In women the lesion most frequently requiring exclusion is adnexal disease. The history must be re-

viewed to determine if the pain is appreciably accentuated by menstruation; a vaginal examination should reveal findings important and useful in differential diagnosis. Ureteral stones, stricture of the ureter, hydronephrosis, nephroptosis and a number of other diseases of the kidney may simulate the pain of chronic appendicitis. A careful urine examination must be made. If nephroptosis is causing the symptoms the pain is apt to be accentuated by automobile rides, etc.; pyelograms in the sitting and standing positions will reveal a change in position of the kidney if ptosis is present. Constipation may produce pain similar to that encountered in chronic appendicitis, especially if a spastic colon is present. If constipation is causing the symptoms efficient treatment should relieve them. Intestinal allergy is rapidly becoming known as a definite disease but diagnosis is even more difficult to establish than it is in chronic appendicitis. A detailed history must be obtained to determine if there is any relation of the intake of a certain food to the production of the pain. If there is the slightest suggestion that the ingestion of certain foods in the patient's diet may be responsible for the pain, these foods must be omitted to see if relief is obtained. The pain of chronic cholecystitis and the discomfort of peptic ulcer are practically always located higher than the right lower quadrant but it must be remembered that pyloric spasm and more rarely peptic ulcer and cholecystitis are associated with chronic appendicitis. Cholecystography and roentgen ray examination with the barium meal will be valuable in identifying such lesions. There are numerous lesions of the cecum, including actinomycosis, tuberculosis, carcinoma, etc., which produce manifestations indistinguishable from those produced by chronic appendicitis. For this reason and others it is readily discernible that a gastro-intestinal roentgen ray examination is one of the most valuable diagnostic procedures used in differential diagnosis, from the standpoint of elimination of various intestinal lesions.

PROTOCOL OF CASES

Case 1. *Pain in right lower quadrant relieved by appendectomy.*—A. H., female, aged 28, has had pain to the right of the umbilicus and slightly below almost daily for several months. No relation to menstruation. Pain remains in this location except for slight discomfort and mild pain in epigastrium noted especially one or two hours after eating. Ingestion of food or water, especially the former relieves this discomfort. No vomiting, but patient eats lightly because of discomfort following heavy meals. Very little nausea. No urinary symptoms. Gastro-intestinal roentgen ray examination revealed a fecalith in the appendix and tenderness was found to lie directly over the cecum. At operation May, 1934, an appendix containing two fe-

caliths but surrounded by no adhesions was removed. Patient was relieved of the pain by the appendectomy and when seen almost a year later stated that she had been completely well since the operation.

Case 2. *Pain in right lower quadrant not relieved by appendectomy.*—A. B., female, aged 16. In August, 1933, noted pain in the right lower quadrant and less prominently over the precordium. When patient was seen on September 8, 1933, she was complaining of headache and occasional vomiting with only mild abdominal pain. Vaginal examination was negative. Within the next two or three months vomiting became more frequent. On October 20, 1933, most of the pain was in the right upper quadrant instead of the right lower quadrant. Urine examination was negative. Pyelograms negative; roentgenograms taken in the sitting and standing position revealed no nephroptosis. No recognizable evidence of intestinal allergy. Pain persisted, but distinctly not maximum when vomiting occurred. No constipation. In spite of the misgivings about the correct diagnosis, operation was finally advised and performed December 1, 1933, at which time an apparently normal appendix was removed. No pathological lesions noted in any of the other organs. Patient was not improved whatsoever by the appendectomy. In spite of an enormous amount of diagnostic work done on the patient an accurate diagnosis has not as yet been made unless the patient has a neurosis, a dangerous diagnosis to make because of the high percentage of inaccuracy.

Obviously, operation should not have been performed. The inconsistency in the location of the pain and tenderness, the complaint of pain in the chest, headache and frequent vomiting in the absence of significant pain in the right lower quadrant and severe pain are features which should have prevented us from even considering an appendiceal lesion. But, obviously, hindthought is always more accurate than forethought.

Treatment.—If it has been determined that the symptoms are of appendiceal origin appendectomy is indicated, providing, of course, that the symptoms are of sufficient consequence to justify laparotomy. Since acute appendicitis rarely is implanted upon chronic appendicitis it is seldom justifiable to urge appendectomy because of prophylactic reasons. The decision as to whether or not appendectomy is to be done should therefore be made largely by the patient, depending upon the amount of disability experienced. Because of the uncertainty of diagnosis, the incision should always be placed near the midline and made large enough to allow thorough exploration of the entire abdominal cavity. Lesions in other organs should be taken care of at operation, depending upon indications.

CONCLUSION

The term chronic appendicitis is inaccurate from the literal standpoint since chronic inflammation of the appendix produced by the same organisms which cause acute appendicitis is extremely rare. However, because of common usage and the lack of a

better term it may be applied to such conditions as fecaliths, strictures and kinks due to adhesions, all of which lesions may produce mild chronic pain in the right lower quadrant. The actual number of cases of chronic appendicitis is considerably smaller than generally appreciated. An enormous amount of difficulty may be experienced in arriving at a correct diagnosis because of the paucity of manifestations and the similarity of the symptoms to those caused by many other diseases. For this reason, a thorough examination of the patient is necessary. When operation is performed, the incision must be made near the midline and large enough to allow a thorough exploration of the abdominal cavity.

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BIBLIOGRAPHY

1. Wilkie, D. P. D.: The Etiology of Acute Appendicular Disease, *Canad. M. A. J.* **22**:314, 1930.
2. Helwig, F. C.: Analysis of One Thousand Appendices from the Viewpoint of the Pathologist, *J. Missouri M. A.* **28**:574, 1931.
3. Masson, P.: Cytology and Cellular Pathology of the Nervous System, New York, Paul Hoeber, 1932.
4. Hosoi, K.: Neurogenic Appendicitis: Study of 195 Cases of Appendicular Neuromas, *Am. J. Surg.* **22**:428, 1933.

OVARIAN THERAPY IN NOSE AND THROAT SURGERY

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In April, 1931, Birch¹ reported the use of ovarian extract and ovarian transplant in the treatment of hemophilia and confirmed Howell's theory that the trouble in hemophilia lies in the platelets which, though they be normal in number and structure, do not yield the cephalin necessary to normal clotting. In July, 1931, Birch² reported further studies in hemophilia based on the fact that the female sex hormone can be isolated from the urine of normal males. Birch concludes that the urine of patients with severe hemophilia is deficient in female sex hormone, and reported two transmitters whose urine was negative for the female sex hormone. Again in November, 1932, Birch³ reported a study of thirty-five cases of hemophilia. These cases were treated with preparations of ovary, testicular extract, mammary extract and anterior pituitary. Preparations of ovary gave the best results. Theelin was found to be of value in the bleeding phase, and lutein gave good results. However, whole ovary in large doses was found the most satisfactory. Of nineteen cases under ovarian therapy for six months, nine showed a good response,

nine definite but less marked response, and one remained unchanged.

Birch believes that the prolongation of coagulation time in hemophilia is due to increased resistance of the platelets for, when this resistance is overcome mechanically, the blood clots in normal time. When certain ovarian preparations were added to hemophilic blood in a test tube, the coagulation time was decreased one fourth to one half the time of the untouched control.

Brem and Leopold⁴ reported a series of experiments resulting in conclusions which do not support the theory of close relationship of the female sex hormone to hemophilia. They state: "(a) We have not been able to demonstrate the presence of estrogenic substance in the urine of normal males. (b) Commercial estrogenic substance employed by us, of known potency, failed to reduce coagulation time or stop hemorrhages in our hemophilic patients."

However, other observers have reported clinical results which confirm Birch's work. McKimm and Van Allen⁵ reported a case treated satisfactorily with whole ovarian extract. Charles Edward White⁶ likewise reported good results in three cases. Kugelmass⁶ reported satisfactory results in chronic hemorrhagic states in childhood. Foord and Dysart⁷ reported a very interesting case of bleeding in a hemophilic following tonsillectomy. The operation was done under local anesthesia and bleeding began two hours later as a diffuse oozing from both fossae. Sponges were sewed in the fossae and thromboplastin administered. Bleeding continued until the patient became pale with a pulse of 130. Mattress sutures were then placed in both fossae and 500 cc. of citrated blood was given intravenously. Bleeding ceased but began two days later and was not checked by thromboplastin and another blood coagulant in large doses. The pulse rose from 115 to 150 in two hours. A second transfusion was given. Two days later bleeding began again briskly, and had continued for about thirty minutes when 1 cc. of Parke, Davis and Company's soluble extract of ovarian substance was given. Within five minutes bleeding stopped, and remained checked from then on. The patient and three brothers were known by the family as bleeders.

In April of this year, I had a somewhat similar experience, but in a female patient.

REPORT OF CASE

Mrs. M. H., aged 23, was operated on April 14, 1934, at Research Hospital. A tonsillectomy was done and she was discharged from the hospital on April 15

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with no postoperative bleeding. On April 20, the fifth postoperative day, I was called to the residence because of postoperative bleeding. There was a diffuse oozing from the left fossa. This was controlled with adrenalin locally. On April 21, I was again called and found a diffuse oozing from both fossae. I sent the patient back to Research Hospital, gave her 10 cc. of whole blood intramuscularly, and controlled the bleeding with local applications of Monsel's solution. On April 25 the patient was discharged from the hospital. On April 30, sixteen days after operation, Mrs. H. had the most severe postoperative hemorrhage that had occurred. She was again returned to Research Hospital and a bleeding vessel was ligated in the superior pole of the right fossa. A diffuse oozing continued from both sides. I then administered 1 cc. of ovarian liquid hypodermically. Within about ten minutes bleeding ceased abruptly. The fossae became somewhat pale and quite dry. No further bleeding occurred. I later obtained information that this patient had been treated for purpura for a period of nine months about four years ago.

The result in this case suggested the pertinent question: viz., is ovarian therapy applicable to bleeding other than that occurring in hemophiliacs? If we accept Birch's ideas and admit that ovarian therapy is beneficial in hemophilia, is it not reasonable to believe that others may be deficient in the female sex hormone but to a lesser degree? Is it not also reasonable to believe that this deficiency may affect females as well as males, as in other endocrine disturbances?

In doing nose and throat surgery I have encountered many bleeders who were not hemophiliacs. These patients have been both male and female. Their blood pictures are normal and they cannot be placed in any known classification of blood dyscrasias. Control of bleeding in such cases is always a problem. Kugelmass⁶ confirms my views in this respect when he states, "Among chronic hemorrhagic disturbances exist entities intermediate between so-called primary hemorrhagic diseases." His report covers the following diseases: (1) Hereditary hemophilia, (2) familial thrombocytopenic purpura, (3) hereditary thrombotic purpura, (4) hereditary hemorrhagic telangiectasis, and (5) transitional hereditary hemorrhagic diseases.

With these possibilities in mind, I determined on the routine use of whole ovary in all private nose and throat operations hoping thereby to, (1) decrease bleeding at the time of operation and, (2) reduce the incidence of postoperative hemorrhage. This work was begun May 1, 1934, and statistics were recorded during May, June, July, August, September, October and November, a total of 201 cases. One cc. of ovarian substance was administered one hour before operation to all patients. In children under 6 years of age the dose was reduced to $\frac{1}{2}$ cc.

Laboratory determinations of coagulation time, bleeding time, blood calcium and platelet count were made on twenty-one patients at St. Joseph's Hospital. These results show that all but two of the patients were within the normal limits, and that the ovarian therapy produced little effect on these. However, on the two cases with a prolonged bleeding time decided reduction was found to exist at both the one and six hour readings.

The list of operations follows: Tonsillectomies, 127; tonsillectomies and antrotomies, 22; radical antrum, 10; antrotomy, 19; antrotomy and submucous resection, 12; antrotomy, submucous, ethmoidectomy, and sphenoidectomy, 9, and submucous resection, 2.

The clinical results were very satisfactory. I encountered much less bleeding during operation particularly in the nasal work also less tissue reaction, that is, less swelling and ecchymosis. I was impressed with the reduction of swelling, pain and ecchymosis in my radical antrum cases (Caldwell-Luc technic).

In the entire 201 cases, I had but one hemorrhage in the first twenty-four hours, and that in a known bleeder on whom I did a tonsillectomy. This patient weighed 203 pounds and I attribute failure in this case to insufficient dosage. Her bleeding was controlled by ligation of a bleeding vessel in the superior pole of the left fossa. Ovarian substance was then given in 2 cc. doses every three hours for twenty-four hours, and then twice daily for one week. This patient had previously bled profusely on two occasions when teeth were extracted.

In the series of 201, three other hemorrhages occurred as follows: One tonsil case on the sixth day. This was a child who did not report for postoperative care and had excessive sloughing from a Vincent's infection. Two were nasal cases that bled, one on the fourth day and one on the sixth day from the inferior turbinal (antrotomy operations) and were controlled by adrenalin packs, and ovarian substance.

I do not advocate the use of ovarian therapy to the exclusion of other measures for control of hemorrhage but as an adjunct to these measures. As such, it has given me a sense of security not equaled by any other measure except the ligation of bleeding vessels.

The following technic is recommended: One cc. fifteen minutes before operation, and 1 cc. one hour after operation. In children under 6, this to be decreased to $\frac{1}{2}$ cc., and in adults over 150 pounds to be increased to 2 cc. I have had no untoward effects from ovarian

even in comparatively large doses. The preparation used was Soluble Extract Ovarian Substance, Parke, Davis and Company.

Administration of ovarian after the first day should depend on the progress of the patient. Calcium by mouth is advisable until repair is completed or repetition of ovarian substance about the fifth day. Slight bleeding is apt to take place from the fifth to eighth day as the slough separates.

CONCLUSIONS

1. Ovarian therapy (whole ovary) for the control of hemorrhage is applicable to other than hemophiliacs.

2. Ovarian therapy (whole ovary) gives good results in females as well as males.

3. Ovarian therapy (whole ovary) is of value for the control of bleeding in surgical procedures on the nose and throat as a pre-operative and postoperative measure.

4. Ovarian therapy (whole ovary) should be used as an adjunct, and not in place of, other measures for the control of bleeding.

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BIBLIOGRAPHY

1. Birch, Carroll Le Fleur: Hemophilia, *Proc. Soc. Exper. Biol. & Med.* **28**:752 (April) 1931.
2. Birch, Carroll Le Fleur: Hemophilia and the Female Sex Hormone, *J. A. M. A.* (July 25) 1931.
3. Birch, Carroll Le Fleur: Hemophilia, *J. A. M. A.* (November 5) 1932.
4. Bren, Jacob, and Leopold, Jerome: Ovarian Therapy; Relationship of the Female Sex Hormone to Hemophilia, *J. A. M. A.* (January 20) 1934.
5. McKimm, H. T., and Van Allen, C. M.: Hemophilia; Prevention and Treatment of Bleeding With Ovarian Extract, *J. A. M. A.* (September 17) 1932.
6. White, Charles Edward: Treatment of Hemophilia With Theelin, *J. Oklahoma M. A.* (July) 1932.
7. Foord, Alvin G., and Dysart, Ben R.: Treatment of Hemophilia by an Ovarian Extract by Birch's Method, *J. A. M. A.* (April 23) 1932.

DISCUSSION

DR. AUGUST A. WERNER, St. Louis: The theory upon which ovarian extract or female sex hormone is supposed to be beneficial in the hemophiliac is as follows:

1. The disease occurs only in males (very rarely if ever in females).
2. It is transmitted only to the males by the female (mother).
3. The female in order to transmit the disease must be a potential hemophiliac.
4. There must be something in the female organism that prevents hemophilia in the transmitter, and there must be something which renders the daughters of a female transmitter immune to the condition.
5. It is argued that the greatest difference between the male and female is sex, and the most important female sex organ is the ovary.
6. Therefore, there must be something in the ovaries which is the inhibitor in the potential female hemophiliac. If this sex substance contained in the female is transmitted to the male hemophilic then he should be immune to the disease.

Dr. Connell treated more than 200 cases (not hemophilia) needing nose and throat surgery by the administration of 1 cc. ovarian substance (extract of 31 grams whole ovary) intramuscularly before the operation and 1 cc. some time afterward. He claims the

incidence of postoperative hemorrhage was greatly reduced. Birch gave 15 to 80 grams daily of whole ovary administered in various ways. Berm and Leopold in an attempt to evaluate the findings of Birch were unable to substantiate her results.

Let us analyze this treatment to determine grossly how much female sex hormone may have been present in the substance administered. One cc. of commercial extract is made from 31 grams of whole ovary. Doisy, McCorquodale and Thayer found that to obtain 1 mg. of crystalline dihydrotheelin, required the extraction of approximately 300 pounds of pigs' ovaries.

If the female sex hormone is the effective element in this treatment then the amount contained in the crude extracts that were given these patients is almost nil.

I gave 200 rat units of theelin to five castrate women daily for a period of twenty-eight days, 300 rat units daily for the second twenty-eight day period and 400 rat units daily during the third twenty-eight day period. The coagulability of the blood of these five women was determined as normal before treatment and then estimated each week thereafter for a period of twelve weeks. The change in coagulability remained within normal for the entire period. There was no evidence of increased coagulability.

CHOLECYSTITIS

TETRAIODOPHENOLPHTHALEIN IN THE TREATMENT OF CERTAIN SELECTED CASES

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In looking up the literature and the early history of tetraiodophenolphthalein, we find that in the beginning of the 18th edition of the U. S. Dispensatory and continuing throughout the 20th edition, which appeared between 1899 and 1918, the sodium salt of tetraiodophenolphthalein was considered an antiseptic and was so used. It was discussed under the names of antinosin and nosophen, which is the sodium salt, and we find its properties were described as follows:

It is a bluish powder soluble in water and can be used as an antiseptic or surgical dressing in from 5 to 10 per cent solution. It is recommended in a 2 to 3 per cent solution as a nasal douche and mouth wash. It is recommended in a 1 to 2 per cent solution in gonorrhea; in $\frac{1}{2}$ to 1 per cent solution for the irrigation of the bladder in cystitis; 1 to 500 or 1 to 1000 in gastric catarrh; 2 per cent solution for external irrigation of the eye. It was also used in this solution in purulent otitis media. As a mouth wash it was recommended with a solution of glycerine and aromatics. Its intravenous use was suggested but according to Burz and Zantz¹ in 1895, this decomposed in the blood when so given so that the nosophen precipitated. These compounds are briefly referred to in the 3rd edition of the National

Standard Dispensatory² in 1916; thus it is seen that this preparation even at this early date was recommended as an antiseptic, no doubt because of its iodine content.

The further life history of sodium tetraiodophenolphthalein or iodeikon is well known as a dye for the visualization of the gallbladder. It was used successfully in 1923 by Graham, Cole, Copher and Moore at Washington University School of Medicine. The chemical work in the perfection of this dye was done by the Mallinckrodt Chemical Company. Articles have appeared in the literature in arguments for and against the intra-oral method, but under ideal conditions we have found the intra-oral method is possibly as satisfactory as the intravenous and therefore we employ it almost as routine when the ideal case presents itself.

Iodeikon (tetraiodophenolphthalein) was submitted to the Council on Pharmacy and Chemistry of the American Medical Association and accepted in 1925. The official name adopted by the Council was tetiothalein sodium. Iodeikon in various forms is now used for examination of the gallbladder and various mixtures are sold by different companies. The credit for the discovery of its diagnostic value belongs to Graham, Cole, Copher and Moore. There is no argument but that iodeikon has been a marked advance in the examination of the gallbladder, especially in early diagnosis of cholecystitis; however, in the hands of incompetent persons and those not thoroughly trained in the technic of the administration of the dye and interpretation of the roentgen ray, some surgical abuse is sure to follow. A number of gallbladders have been removed when found to be mildly pathological that probably could have been treated medically and the patients saved from an operation; such gallbladders afterward probably produced as many symptoms as they did before removal or drainage.

In reviewing about 1000 gallbladder cases examined with the roentgen ray after administration of tetraiodophenolphthalein intra-orally it was noted that all of them in which the gallbladder was visualized at all felt better after the roentgen ray examination. Naturally, we wondered about this for it could not be explained as the result of the exposure to the roentgen ray; consequently some experimental work on this subject was started about four years ago. A number of cases were selected in which it was known the gallbladder was pathological and a certain series of them were exposed to roentgen ray; the others were not. All these patients felt better after administration of the dye. Then of course the question was still in our minds—why?

We have selected sixteen cases and also have

reports from other men in various sections of the country to whom we have sent the preparation, all of which are favorable with the exception of some cases that were purely surgical or which were afterward found to be malignant.

In the administration of this preparation it seems to work best in tablet form. We have tried it in capsules and in solution, but the tablet seems to be the least nauseating and irritating to an already existing gastritis. Our procedure has been to give the tablets thirty minutes to one hour before meals, three times a day until thirty tablets have been taken. Then the patient is instructed to wait a few days and return for a roentgen ray examination. In all instances the mucosal function of the gallbladder was improved except, as stated, in cases that were purely surgical or malignant. The tablets that were finally agreed upon contain 3 grains of the salt (tetraiodophthalein sodium) with some combining substance that holds it in the tablet form. In other words, in a period of ten days the patient gets 90 grains of the salt taken in broken doses.

Now let it be understood, this is not suggested as a cure-all for gallbladder conditions but our experience, backed up by the theory of previous literature on the subject, has led us to believe that it is a definite antiseptic and because it is excreted by the liver into the gallbladder it is definitely indicated in certain cases of chronic hepatitis and selected cases of chronic cholecystitis; in substantiation we report the following cases:

REPORT OF CASES

Case 1. Woman, aged 26. When first examined gave a history of nausea, vomiting and pain after meals. Physical examination showed definite rigidity over the upper portion of the right rectus muscle with localized tenderness, margin of the liver and gallbladder. Roentgen ray examination (with oral administration of the dye) showed a very slowly functioning gallbladder.

Patient was put on the gallbladder tablets for a period of ten days, then treatment was stopped. Patient in the meantime took a strong saline cathartic; all the symptoms she had before returned and in addition to the first symptoms she had general tenderness over the entire abdomen. After this subsided she was reexamined by roentgen ray and definite improvement in the function of the gallbladder was shown; as a matter of fact, it could be classified at this time as normal. At the present time patient still shows some tenderness but not nearly so marked as at the first examination.

Case 2. Woman, aged 39. Had previous operation, left breast amputated for carcinoma. Patient still has enlarged cervical glands which are no doubt malignant. History shows patient got definite gallbladder attack immediately after the breast operation and became severely jaundiced; could retain no food whatsoever for a period of from six to seven weeks during which time she lost considerable weight.

Roentgen ray examination of the gallbladder showed a very slow filling and emptying gallbladder; influenced

very little by the fat meal. After the roentgen ray examination patient was put on the gallbladder tablets and within three days showed marked improvement and after a period of six days she went back to her normal diet. At this time there was no tenderness as shown in previous symptoms in this region and the jaundice has completely cleared up.

Case 3. Woman, aged 29. Physical examination shows some tenderness in upper right quadrant with constant belching accompanied by occasional nausea when patient would eat certain things. Roentgen ray showed definitely slow filling and emptying gallbladder; influenced very little by the fat meal, with retention at the end of twenty-four hours after patient went on normal routine diet. She was put on the gallbladder tablets. All the time during the period she was taking the tablets she was nauseated and complained of occasional pain of a paroxysmal nature. Treatment was continued for ten days and after this treatment with the tablets had ceased her pain and nausea subsided. Patient still has considerable belching but roentgen ray examination (recheck) shows a normally functioning gallbladder at this time. In this case there is a definite question as to whether or not there is some periduodenal involvement as well as pericholecystitis.

Case 4. Man, aged 69. This patient had been examined at various clinics in the United States and had been pronounced normal except for general condition that accompanies old age. Gallbladder dye was administered orally and roentgen ray examination made. The roentgen ray showed a definite deformity of the gallbladder which is either a congenital malformation or a deformity produced by adhesions. This patient was put on the tablets for a period of ten days. All his symptoms relative to the upper right quadrant cleared up and there has been no recurrence up to the present time. Examination made four months ago.

Case 5. Woman, aged 28. History of pain in right upper quadrant with definite tenderness over region of the gallbladder with muscle rigidity upper portion of right rectus. Gallbladder examination showed a definite disturbance in the mucosal function with very slow filling and emptying gallbladder which was influenced very little by the fat meal. Patient was put on the tablets for a period of ten days after which her symptoms cleared up and there has been no recurrence up to the present time. Patient states she feels better now than she has felt in years. Physical examination shows no tenderness and no rigidity; no evidence of recurrence of the condition.

Case 6. Man, aged 57. Appearance, general jaundice. Definite tenderness over region of gallbladder. Patient states he was bedridden for at least a month; was not able even to move about the house. This patient was put on gallbladder tablets, one three times a day, for a period of fifteen days. After the tenth day his condition completely cleared up. After a period of twenty days his jaundice had completely disappeared and patient states he feels better than he has for years.

Case 7. Man, aged 47; had previous examinations for gallbladder both intravenous and intra-oral. Both examinations revealed a pathological gallbladder with function very much retarded; also showed a pericholecystitis with adhesions. Patient was put on gallbladder tablets, one three times a day, for ten days; condition so far as symptoms are concerned, has completely cleared up and has not recurred. This patient has an allergy to certain foods, especially white bread.

Case 8. Man, aged 55. Definite diagnosis of tuberculosis; remained twelve or eighteen months in Koch Hospital on previous occasion. Roentgen ray shows

definite tuberculous involvement in chest. Antedating the period he stayed in Koch Hospital he suffered with pain in the upper right quadrant, midsection, with definite tenderness for a period, as he states, of twenty years. At the time it was a question whether or not it would be the proper treatment to put this man on iodine treatment due to his tuberculous infection; it was finally decided to try the treatment. He was put on the tablets and after a period of ten days his pains and symptoms referable to the gallbladder had completely cleared up. Previous examination by roentgen ray showed a slowly filling and emptying gallbladder; subsequent examination after treatment showed marked improvement in the function of the gallbladder. Mucosal function at this time seems to be normal; patient now is suffering no pain or any symptoms whatsoever referable to the gallbladder. During the time he took these tablets he was not troubled with constipation; prior to that time he had been habitually constipated.

Case 9. Woman, aged 39. Gave history of gastric disturbance, nausea, dizziness and occasional fainting spells with pain in upper right quadrant and rigidity in right rectus muscle. Roentgen ray by intra-oral method of administration of the dye showed definite slow functioning gallbladder and fairly well marked shadow at the end of twenty-four hours. Patient then was put on the tablets, one three times a day, for ten days. At the end of thirty days roentgen ray showed gallbladder function apparently normal so far as the filling and emptying and influence of the fat meal are concerned. No retention at end of twenty-four hours.

Case 10. Physician, aged 76, suffering from a definite diagnosis after exploratory operation of carcinoma of the liver. Patient put on the tablets for a period of ten days taking one tablet three times a day. Showed no improvement and no reaction to the administration of the tablets. Microscopic and chemical analyses of the feces showed no bile. Patient gradually growing worse.

Case 11. Woman, aged 45; definite clinical pathological gallbladder. Roentgen ray examination showed very little shadow of the gallbladder, showing very little of the dye could be gotten into the gallbladder. Patient put on the gallbladder tablets for a period of ten days and up to the present time she has not returned to her family physician. He has called her by phone a number of times but she states she is feeling so good she did not think it necessary to come back; therefore we did not get a recheck from a roentgen ray standpoint. First examination made about four months ago.

Case 12. Woman, aged 37; definitely neurotic. Patient shows general tenderness over entire abdomen with special reference to upper right quadrant. Clinically, appears to be a definite gallbladder associated with hysteria. No roentgen ray examination made in this case. Patient put on the gallbladder tablets. Symptoms with reference to the gallbladder have completely cleared up. No tenderness on physical examination at the present time. No roentgen ray examination made either before or after.

Case 13. Woman, aged 49. Physical examination and history indicated a pathological gallbladder with probably some gastro-intestinal complications. Roentgen ray showed a large gallbladder which was very slow in function. Patient put on the tablets for ten days and showed a marked improvement so far as symptoms were concerned. No recheck of the roentgen ray was made. So far patient says she is improved and practically free from symptoms up to the present time. She was examined ninety days ago.

Case 14. Man, aged 56. History of previous cholecystitis with a drained gallbladder. At present time shows definite tenderness in region of the scar which is sometimes complicated by gastro-intestinal disturbances. Patient put on the gallbladder tablets for a period of ten days and his tenderness has completely subsided; no symptoms referable to the gallbladder region can be noted at this time. No roentgen ray examination.

Case 15. Widow, aged 71. History of frequent attacks of indigestion with emition of bitter material. Operated on for appendicitis sixteen years ago. At that time was told she had a large liver. Patient has numerous attacks of sinusitis. One week's treatment with the gallbladder tablets improved the gastric symptoms.

Case 16. Woman, aged 50. Went through Barnes Hospital clinic and was told she had a bad gallbladder and it would have to be removed. Nauseated, indigestion, generally fatigued all the time. After taking the gallbladder tablets for a period of ten days, one tablet before each meal, she is feeling fine; eats everything and has lost her feeling of fatigue entirely.

We also noticed that certain cases of enteritis improved with the administration of these tablets and we are wondering if certain cases of chronic colitis will not be improved. On these cases we have not sufficient data to make a statement but we understand this work is being carried on elsewhere and there will probably be a report soon.

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BIBLIOGRAPHY

1. Burz and Zantz: *Med. Fort.* 13, 1895.
2. Hare, Caspari and Rusby: *National Standard Dispensatory*, p. 1230, 1916.

THE SIGNIFICANCE OF PYURIA IN CHILDREN

Alexander B. Hepler, Seattle, and Russell T. Scott, Lewiston, Idaho (*Journal A. M. A.*, Aug. 17, 1935), believe that there is a tendency among pediatricians to evaluate the importance of pyuria in children on a quantitative basis and to assume that a few pus cells are normal or indicate contamination and that a large number point to infection or disease of the urinary tract. Since arbitrary limits of normal are given without qualification and since no systematic study of a large number of children has been reported that would definitely confirm or refute many of the assumptions that appear in the literature on this subject, to this end the authors examined 694 infants and children during a period of nine months, from which study they concluded that: 1. Catheterization is imperative in urinary diagnosis in children. Of 692 children 99 per cent had pus in the voided urine and only 13 per cent in the catheterized. 2. The amount of pus in a urine properly collected is no indication either of the kind or of the severity of disease of the urinary tract. In the twenty-four children with demonstrable disease of the urinary tract, exactly similar lesions existed with pus counts that varied from less than 1 per high dry field to more than 20 per high dry field. Of these children and a number with advanced lesions and severe infections 50 per cent had pus in amounts well under what is fre-

quently set forth as a normal count. 3. If a persistent or recurrent pyuria is taken as a criterion for a complete renal study, a number of children will be subjected to what is apparently an unnecessary examination, for only 37 per cent of the sixty-four with pus in the catheterized specimen had demonstrable disease of the urinary tract. The amount of pus is no guide as to the necessity for cystoscopy. Many of the obstructive lesions are "silent" and a few pus cells the only indication of a pathologic process, so that it is undoubtedly a "greater error to miss making an early diagnosis through neglect of proper examination than to mistake the indication and subject the child to what is apparently an unnecessary examination." 4. Many urologic lesions in children are "silent" or have misleading symptoms. Only nine of the twenty-six children in the study who were found to have disease of the urinary tract had subjective symptoms that were in any way referable to the urinary tract. In only ten was there any presumption of a urinary lesion. The remaining sixteen were discovered through the routine study of pyuria. 5. Urinary complications in children with bone and joint tuberculosis are not common, and prolonged immobilization on frames or in casts does not tend to urinary stasis, infection and stone formation. Forty-one of the children examined had bone or joint tuberculosis. In none were tubercle bacilli found in the urine after repeated and careful examination. Only seven had pus in the urine, and none of these had any demonstrable disease of the urinary tract. In determining the type of organisms in 183 urines, the fresh smear and cultures agreed in 170, or 92 per cent.

UVEOPAROTITIS

Samuel J. Cohen and Meyer A. Rabinowitz, Brooklyn (*Journal A. M. A.*, Aug. 17, 1935), discuss the signs, symptoms, laboratory data, etiology, prognosis and treatment of uveoparotitis from the clinician's point of view and report an additional case of the disease. That this syndrome constitutes a well defined clinical entity they believe is now beyond any doubt; its etiology, however, is still in controversy. The promulgators of the tuberculosis theory failed to supply sufficient solid proof to justify their conclusions. A diagnosis of uveal tuberculosis requires proof of the presence of a primary focus, yet no such positive proof is available. Tubercle formation with a central giant cell and surrounding mononuclear phagocytes is a tissue reaction that can be caused by organisms other than the tubercle bacillus. Microscopic evidence of tuberculosis in either a biopsy or an animal inoculation was never proved. Uveoparotitis is also readily differentiated from mumps not alone because of the chronicity of the former and the acute course of the latter, but because the disease occurred in persons who had had mumps before. It is difficult to conceive that this entity even resembles the Mikulicz syndrome or that it is a deficiency disease, but the frequent finding of eosinophilia and a skin rash are likely to be evidences of an allergic state. This allergic state is not caused by the tubercle bacillus, because the tuberculin reactions in these cases were negative. Therefore, it is quite likely that this syndrome is produced by an organism as yet not isolated, which produces a low grade infection in a sensitized individual and runs a slow course with a spontaneous termination. Since the disease is chronic and possibly infectious the authors suggest foreign protein therapy in its treatment.

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SEPTEMBER, 1935

EDITORIALS

KANSAS CITY SOUTHWEST CLINICAL SOCIETY

ANNUAL FALL CONFERENCE, KANSAS CITY,
OCTOBER 7-10

The thirteenth Annual Fall Clinical Conference of the Kansas City Southwest Clinical Society will assemble in Kansas City, Missouri, October 7-10. The entire scientific program will be presented in the President Hotel with morning, afternoon and evening sessions.

Guest speakers who will each deliver two or more addresses on scientific subjects include Dr. Fred Albee, New York City; Dr. John Alexander, Ann Arbor, Michigan; Dr. Wayne Babcock, Philadelphia; Dr. Harlow Brooks, New York City; Dr. Arthur C. Christie, Washington, D. C.; Dr. Alfred Folsom, Dallas, Texas; Dr. Harry S. Gradle, Chicago; Dr. Francis E. LeJeune, New Orleans; Dr. William S. Middleton, Madison, Wisconsin; Dr. M. G. Peterman, Milwaukee, Wisconsin; Dr. Edward A. Schumann, Philadelphia; Dr. Albert Soiland, Los Angeles, and Dr. Cyrus C. Sturgis, Ann Arbor, Michigan.

Other scientific addresses will be delivered before the assembly by seventeen members of the Clinical Society. In addition to these addresses, scientific lectures and clinics will be given by the society during two-hour periods on the morning of each day of the session. Six of these lectures and two clinics will be presented concurrently on non-conflicting subjects, October 8, 9 and 10.

Scientific exhibits and technical exhibits will be displayed on the convention floor of the President Hotel and will be open to visitors during the entire meeting. A public meeting will be held in the Ararat Shrine Temple Monday evening, October 7, with admission free by ticket only. At this meeting Dr. Harlow Brooks, Dr. Arthur C. Christie and Dr. Albert

Soiland will each present a message of special interest to the laity as well as the profession.

The scientific meeting on Tuesday evening will be complimentary to the members of the local county medical societies as well as all registrants for the conference. The speakers will be Dr. Wayne Babcock, Dr. Harlow Brooks and Dr. Arthur C. Christie.

The round table luncheons, one each day of the conference, will afford an additional opportunity for the physicians to hear informal talks by guest speakers. Tuesday's luncheon will be a testimonial to John Fairbairn Binnie with a talk by Dr. Wayne Babcock. The luncheon on Wednesday will be a memorial to Jabez North Jackson.

In response to numerous requests for another tour of the William Rockhill Nelson Gallery of Art, plans have been completed for another tour of the gallery on Wednesday evening, October 9. Last year's tour elicited many complimentary expressions from those that attended. The tour this year will be complimentary to physicians and their families.

Alumni dinners most fittingly have been reserved for the evening of Thursday, October 10, to bring to a close these four days of intensive study. This year an additional social event will be the clinical society dinner for men and women.

The woman's committee has arranged for a number of entertainments all of which will be complimentary to the wives of the physicians who register for the conference. A special registration desk and calendar of social activities will be available for the visiting women.

ANNUAL MEETING OF THE NINTH COUNCILOR DISTRICT

COLUMBIA, SEPTEMBER 17

The members of the Boone County Medical Society will be hosts for the annual meeting of the Ninth Councilor District at Columbia, Tuesday, September 17. This meeting has been planned as a Southern Medical Association Day in Central Missouri. Speakers active in that association will appear on the program and an official of that body will give a preview of and make some announcements concerning the twenty-ninth annual meeting of the Southern Medical Association which will be held in St. Louis, November 19-22.

The members of the organized medical profession within the Ninth Councilor District are expected to attend, and while official invitation will be extended only to the officials and Councilors of the Missouri State Medical Association and to members of county societies neighboring to Boone County, members of the Mis-

souri State Medical Association throughout the state are invited to attend.

A scientific program on practical medicinal topics presented by masters in their fields, good food prepared by Columbia's culinary experts, an opportunity to renew friendships, to make new friends and to fraternize with colleagues promise to make this a memorable day in the annals of Central Missouri medicine. The meeting will be held at the Columbia Country Club. The program will begin at 3 p. m.

The speakers, their addresses, official positions and subjects are: Dr. Frank K. Boland, Atlanta, Georgia, Professor of Clinical Surgery, Emory University, "Surgical Treatment of Pulmonary Tuberculosis." Dr. Searle Harris, Birmingham, Alabama, Professor of Medicine, Emeritus, University of Alabama, "The Diagnosis and Treatment of Hyperinsulinism." Dr. Quitman U. Newell, St. Louis, Associate Professor of Clinical Obstetrics and Gynecology, Washington University, "Importance of the Recognition of Early Uterine Carcinoma: With Some Remarks on Treatment." Mr. C. P. Loran, Birmingham, Alabama, Secretary-Manager, Southern Medical Association, "Some Aims of the Southern Medical Association and a Preview of the St. Louis Meeting."

Dinner will be served at 6:30 p. m.

Dr. W. P. Dysart, Columbia, president of the Boone County Medical Society, and Dr. A. R. McComas, Sturgeon, Councilor of the Ninth Councilor District, have appointed the following committees to have charge of arrangements for this meeting: Committee on speakers and invitations, Dr. Frank G. Nifong; Dr. Dudley S. Conley, and Dr. Dudley A. Robnett; committee on program and arrangements, Dr. M. Pinson Neal, Dr. Carl M. Sneed, Dr. Maurice E. Cooper, Dr. E. D. Baskett and Dr. Stephen D. Smith, Columbia.

WALTER WILLIAMS, EDITOR, EDUCATOR, INTERNATIONALIST

There are few groups or individuals who did not lament keenly the death of Dr. Walter Williams, Columbia, July 29. While Dean Williams was before all things a journalist, his influence was felt in all fields, probably somewhat more in the medical profession than in many other fields.

Dean Williams was born in Boonville, Missouri, July 2, 1864. Despite nothing but a grammar and meager high school education he first achieved honor as a young country editor in Boonville where he gained national recognition. He began as a printer's devil and became probably the best known citizen of Missouri throughout the world. He was an editor

before the age of 20, was president of the Missouri Press Association at 23 and of the National Editorial Association at 30.

He became editor of the Columbia (Missouri) *Herald* and there served on the Columbia School Board and on the Board of Curators of the University of Missouri. It was while a member of the latter board that he proposed and gained acceptance that professional training be provided for newspaper men. He founded and became dean of the School of Journalism in 1908, the first such school in the world and a model for many others throughout the world. Three times Dean Williams had traveled around the world and had made numerous trips abroad meeting and conferring with editors, statesmen and rulers. He was a writer, an educator and an internationalist.

In 1930 he was drafted for the presidency of the University of Missouri and conducted the University through the worst economic storm in its history. Among his achievements as president was the adoption of the five-year course in the School of Law and the reinstatement of the four-year curriculum in the School of Medicine, both temporarily suspended so that the University could take care of the students already enrolled. Five new deans were added to the faculty. The crippled children's service was improved and additional funds have been promised for the enlargement of the service. Dean Williams was instrumental, as the chairman of the Board of Curators, in originally bringing into being a first-class complete course in medicine in the University.

Among other achievements and activities Dean Williams was for several years chairman of the executive committee of the board of curators of the University of Missouri; commissioner on a world tour for the Louisiana Purchase Exposition; fellow on a world tour of the Kahn Foundation for the Foreign Travels of American Teachers; established Journalism Week which gathered ambassadors, statesmen and publishers at Columbia each spring; fellow of the British Institute of Journalists; member of the National Union of Journalists of Great Britain; author of both fiction and technical books; was instrumental in establishing the first Asiatic school of journalism at Yenching University, Peiping, China; organizer of the Missouri Old Trails Association and a leader in the organization of the National Old Trails Association. He was much in demand as an orator. The honorary degree of doctor of laws was conferred on him by the Missouri Valley College and the Kansas State Agricultural College. He was a member of many organizations both abroad and in this country.

In his untiring efforts to elevate journalism

to a profession Dr. Williams repeatedly quoted medicine as an illustration, giving medicine a highly respected place in society. The School of Medicine of the University was used as one of his illustrations of the value of a professional training. He compared the paper published in the School of Journalism to the clinic supplementing the classroom.

Dean Williams placed medical men on the program of Journalism Week and appointed them on the advisory council of the University. Physicians were numerous among his friends and counselors.

MANY MEDICAL MEETINGS TO BE HELD IN MISSOURI

Missouri has several excellent medical centers and much to offer any organization holding a session in any of these localities. In the past conferences have necessarily been for small groups as there was no place in the state which could accommodate a large gathering. The Municipal Auditorium in St. Louis is sufficiently commodious for almost any group and the Kansas City Municipal Auditorium will be completed early in the spring of next year.

The first medical organization to convene in the St. Louis Auditorium will be the Southern Medical Association which will meet November 19-21. Probably the first medical convention in the Kansas City Auditorium will be the American Medical Association which will hold its 1936 session in Kansas City.

Since facilities for entertaining larger gatherings have become available several of the larger medical organizations have selected Kansas City and St. Louis as their meeting places and these added to the small meetings make the number of conventions scheduled worth comment.

Besides the American Medical Association which will convene in Kansas City May 11-15, 1936, other organizations which have scheduled their sessions to be held in that city are the Missouri Public Health Association, September 5-7; the Missouri Tuberculosis Association, September 5-7; the American Congress of Physical Therapy, September 5-7 and 9-12; the Kansas City Southwest Clinical Society, October 7-10; the American Association for the Study of Internal Secretions, May 11-12, 1936; the Medical Women's National Association, May, 1936, and the American Proctologic Society for its 1936 session.

St. Louis will entertain the following medical organizations: American Occupational Therapy Association, September 30-October 3; American Hospital Association, September 30-October 3; American Society of Tropical Medicine, November 13-15; Southern Branch, American

Public Health Association, November 19-20; Southern Medical Association, November 19-21; American Academy of Orthopedic Surgeons, January 13-16, 1936; International Society for Crippled Children, May 3-6, and the American Psychiatric Association, May 4-9.

MISSOURI EMERGENCY REVENUE ACT OF 1935

The Missouri Emergency Revenue Act of 1935 will go into effect August 27 and remain effective until December 31, 1937. The act was passed by the General Assembly because existing revenue receipts were not sufficient to meet the demands of government. The proceeds will be used primarily for relief, public schools and other educational institutions, caring for indigent insane and for old age pensions. The tax is 1 per cent of the sale price.

Physicians and dentists are of course subject to the tax in all personal transactions but the following special rules clarify the tax as to professional activities:

Dentists, physicians and veterinarians primarily render professional services and such services are not taxable. Sales by dental laboratories, supply houses or jobbers to such persons, of materials, supplies and equipment which are used in the rendering of such professional services are deemed sales to the ultimate consumer or user when sold to the dentists, physicians or veterinarians and the seller thereof must collect and remit the tax thereon to the State Auditor.

Such sales include among other things sales of equipment such as dental chairs, operating tables, motors, instruments, roentgen ray machines, office equipment, stationery and supplies; sales of supplies to dentists such as platinum, gold, silver, cement and other materials used in making fillings, inlays, bridge work and false teeth; such sales also include supplies to physicians or veterinarians such as dressings, bandages, drugs or medicines.

Sales by dentists, physicians and veterinarians of items of tangible personal property such as packaged dentifrices, proprietary medicines and the like are taxable retail sales when sold entirely separate and apart from the rendition of personal services and therefore such sales are taxable and the tax must be collected from the purchasers thereof. The sales by supply houses of such packaged dentifrices, etc., are therefore deemed sales for resale and the tax thereon is not collected by such supply houses.

The oculist's professional services are ordinarily confined to examination and treatment of the eye and charges for such services are not taxable. However, when the oculist sells medicines, etc., at retail, as a business, or enters into the field of the optician or optometrist by selling eyeglasses or parts thereof to the user or consumer, he must collect and remit the tax on such sales of tangible personal property.

The tax in all cases will be collected from the purchaser as outlined in section 5 of the Act which reads as follows:

It shall be unlawful for any person to advertise or hold out or state to the public or to any customer di-

rectly or indirectly, that the tax or any part thereof imposed by this Act and required to be collected by him, will be assumed or absorbed by the person or that it will be added to the selling price of the property sold or service rendered, or if added that it or any part thereof will be refunded. Any person violating any of the provisions of this section shall be guilty of a misdemeanor.

NEWS NOTES

Dr. John Green, St. Louis, was elected chairman of the Section on Ophthalmology of the American Medical Association at the Atlantic City Session. Dr. Green was also elected chairman of the American Board of Ophthalmology for 1936.

The Missouri Tuberculosis Association and the Missouri Public Health Association will hold a joint annual session at the Muehlebach Hotel in Kansas City, September 5, 6 and 7. The Mississippi Valley Conference on Tuberculosis will be held at the Loraine Hotel, Madison, Wisconsin, September 12, 13 and 14.

Dr. Ellis Fischel, St. Louis, Dr. W. P. Healy, Baltimore, and Dr. Frank L. Rector, Evanston, conducted six cancer clinics in different parts of Wisconsin, July 8 to 13. The clinics were held under the auspices of the Wisconsin State Medical Society, the University of Wisconsin Medical School and the American Society for the Control of Cancer. The purpose of the clinics was to demonstrate new methods of diagnosis and to present to the general practitioner the latest data on prevention and cure of cancer. A public lecture was given after each clinic.

The first annual meeting of the Mississippi Valley Medical Society will convene at Quincy, Illinois, October 2, 3 and 4 with headquarters at the Lincoln-Douglas Hotel. There will be fifty lectures and demonstrations presented by members and guests. Membership in the organization is restricted to members in good standing of the Missouri, Illinois and Iowa medical associations. The society was organized for the purpose of holding a scientific session each fall for physicians of the three states. All sessions will be held in cities located on the Mississippi River. Dr. H. B. Goodrich, Hannibal, is president-elect of the society and Missouri members on the advisory committee are Dr. E. Lee Miller, Kansas City; Dr. C. T. Ryland, Lexington, and Dr. R. A. Woolsey, St. Louis.

Drs. T. S. Blakesley and John L. Myers, Kansas City, and E. H. Ewerhardt and A. J. Kotkis, St. Louis, will be among the lecturers of the instruction course to be presented by the American Congress of Physical Therapy in Kansas City, September 5, 6 and 7. This instruction course will precede the fourteenth annual session of the congress which will convene September 9 to 12. Among those presenting addresses at the annual session will be Drs. M. A. Roblee, F. H. Ewerhardt, T. P. Brookes, A. J. Kotkis, St. Louis; and John L. Myers, W. W. Duke and T. S. Blakesley, Kansas City. All sessions will be held at the Hotel Kansas Citian.

The United States Civil Service Commission has announced open competitive examinations for public health specialists. Applications must be on file with the United States Civil Service Commission, Washington, D. C., not later than September 9. The positions include several grades of bacteriologists, cytologists, epidemiologists and mycologists (medical), and the position of senior pathologist (medical). Full information may be obtained from the Secretary of the United States Civil Service Board of Examiners at the post office or customhouse in any city which has a post office of the first or second class, or from the United States Civil Service Commission, Washington, D. C.

The International Assembly of the Interstate Postgraduate Medical Association of North America will be held in the Masonic Temple, Detroit, Michigan, October 14 to 18 with pre-assembly clinics on October 12 and postassembly clinics on October 19 at the Detroit hospitals. A clinical and didactic program including all branches of medicine and surgery has been arranged by the program committee. The Wayne County Medical Society, the Michigan State Medical Society, the Detroit Convention and Tourist Bureau and the Detroit Board of Commerce are cooperating in offering an excellent opportunity for an intensive week of postgraduate medical instruction. Missouri members appearing on the program and their subjects are Dr. David P. Barr, St. Louis, "Conceptions of Diabetes as Modified by Recent Studies of the Hypophysis and the Adrenals"; Dr. Ralph A. Kinsella, St. Louis, "Bacterial Endocarditis," and Dr. L. W. Dean, St. Louis, "The Treatment of Diseases of the Nasal Sinuses in Infants and Young Children." A partial list of the guest speakers appears on page 14. A registration fee of \$5 admits all members of the profession in good standing. Officers of the association are Dr. Charles H.

Mayo, Rochester, Minnesota, president; Dr. George W. Crile, Cleveland, chairman of the program committee, and Dr. William B. Peck, Freeport, Illinois, managing-director.

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

- Abbott Laboratories
- Abbott's Cod Liver Oil
- Arzol Chemical Company
- Mercurochrome Applicators
- Hynson, Westcott & Dunning
- Surgical Solution of Mercurochrome—H. W. & D.
- Lederle Laboratories, Inc.
- House Dust (New York Apartment House)
- Allergenic Extract—Lederle
- Merck & Co., Inc.
- Aminoacetic Acid—Merck
- Parke, Davis & Co.
- Antipneumococcic Serum (Felton) Types I and II Refined and Concentrated
- E. R. Squibb & Sons
- Soluble Gelatine Capsules Squibb Stabilized Halibut Liver Oil
- Soluble Gelatine Capsules Squibb Stabilized Halibut Liver Oil with Viosterol
- Sharp & Dohme
- Ampules Sodium Cacodylate—Mulford, 2 grains, 1 cc.
- U. S. Standard Products Company
- Ampul Solution Sodium Cacodylate 0.2 Gm. (3 grains), 1 cc.
- Ampul Solution Sodium Cacodylate 0.32 Gm. (5 grains), 1 cc.
- Ampul Solution Sodium Cacodylate 0.45 Gm. (7 grains), 1 cc.
- Ampul Solution Sodium Cacodylate 0.2 Gm. (3 grains), 5 cc.
- Ampul Solution Sodium Cacodylate 0.32 Gm. (5 grains), 5 cc.
- Ampul Solution Sodium Cacodylate 0.45 Gm. (7 grains), 5 cc.

The following article has been accepted for inclusion in the List of Articles and Brands Accepted by the Council But Not Described in N. N. R. (New and Nonofficial Remedies, 1935, p. 445):

- U. S. Standard Products Co.
- Epinephrin Hydrochloride Solution 1:1000
- Physiological Solution of Sodium Chloride—U. S. P., 50 cc. bottle
- Physiological Solution of Sodium Chloride—U. S. P., 100 cc. bottle

OBITUARY

WILLIAM P. SMITH, M.D.

Dr. Wm. P. Smith, Troy, a graduate of the Beaumont Hospital Medical College, St. Louis, 1893, died February 8 in the Missouri Baptist Hospital, St. Louis, from a kidney infection. He was 64 years old.

Dr. Smith was born near Troy and attended the schools there and "read medicine" under the late Drs. D. W. Tice and S. R. McKay. After completing his medical studies at the Beaumont Hospital Medical College he began practice in Troy and continued in practice there until his death.

Dr. Smith was a member of the Lincoln County Medical Society. He was ever loyal to organized medicine and devoted to his practice. His final illness followed and was probably due to a strenuous period during a cold and influenza epidemic.

He was as earnest a citizen as he was a physician. He had served his county as coroner, health commissioner, road commissioner and representative in the State Legislature and had served his city on the board of education and on the city council.

He was a man of strict integrity, was generous and loyal and endowed with endless sympathy.

He is survived by his widow, Mrs. Eugenia Allen Smith, two children, two grandchildren, three sisters and six brothers.

CHARLES LEWIS ALLEN, M.D.

Dr. Charles L. Allen, Cosby, a graduate of the Central Medical College, St. Joseph, 1898, died at his home December 8, 1934, after a prolonged illness, aged 64 years. Dr. Allen was born at Hiawatha, Kansas, and came to Missouri with his parents when he was a small child.

After obtaining his degree in medicine he began his practice in Whitesville and remained there until 1903 when he moved to Cosby. He remained in practice in Cosby until two and a half years before his death when he retired because of failing health.

Dr. Allen was a loyal member of organized medicine and when his health failed he was made an honor member of the Buchanan County Medical Society. While Dr. Allen had been out of practice for some time his influence was still felt and his death is mourned by the profession and his many friends.

He is survived by his widow, Mrs. Anna Kimberlin Allen, two sisters and several nieces and nephews.

WILFORD A. NORRIS, M.D.

Dr. W. A. Norris, Columbia, a graduate of the University of Missouri School of Medicine, 1883, died in the Boone County Hospital, May 28, of angina pectoris, aged 76 years.

He was born about fifteen miles from Columbia and after finishing his medical studies practiced in that vicinity, first in Hinton, then in Woodlandville and then located in Columbia where he remained in active practice almost until the hour of his death. He was in his office when he suffered his fatal attack and died a few hours later.

Dr. Norris became a member of organized medicine early in his career. In addition to his county, state and national medical memberships he was a member of the American Public Health Association and the Public Welfare Association and was vice president of the

Health Officers Association of Missouri. He had been city and county health officer for eighteen years preceding his death. He was instructor in anatomy in the Missouri University School of Medicine from 1893 to 1895.

Dr. Norris is survived by a daughter, a sister, a brother and two grandchildren.

ERNEST LOWREY, M.D.

Dr. Ernest Lowrey, Excelsior Springs a graduate of the Marion-Sims Medical College, St. Louis, 1892, died in the St. Joseph State Hospital, April 1, of a paralytic stroke suffered the same day. He was 64 years old.

Dr. Lowrey was born in Columbia and received his early education there. After obtaining his medical degree he took postgraduate work in several schools and hospitals. He practiced in Norborne and Carroll County for five years then moved to Excelsior Springs where he remained in practice until his death. He had been a faithful member of the Clay County Medical Society for many years.

Dr. Lowrey is survived by two sons, one of them a physician in New York City, one sister and one brother.

NEWTON WOODBURY AMOS, M.D.

Dr. Newton Woodbury Amos was born in Poplar Bluff, Missouri, on January 26, 1867. His parents, Adam and Anna Amos, died and left him, a small infant, to be raised by an uncle, Nicholas Amos, who lived at Oak Ridge in Cape Girardeau County.

Dr. Amos attended the district school and later the normal school at Cape Girardeau during which time he performed in succession all the tasks of a farm hand as rapidly as the strength of his years would permit. This hard manual labor began at earliest dawn. It allowed hours for school attendance and then began again and lasted until the coal oil lamp was lighted for study.

Thus was young Amos prepared for the difficult tasks of his later life. In his case, as in the case of many successful men whose beginnings were humble, the labors of his youth not only prepared his muscles to carry burdens that were heavy over roads that were rough, but sharpened his keen powers of observation and perception, developed initiative and self-reliance and put a sturdiness and fortitude into his character that remained with him until the end of his useful life.

After completing his course at the Cape Girardeau Normal, he taught school at Jackson. Here he denied himself of every luxury that he might save enough money to pay his tuition and support him while he studied medicine.

He entered the St. Louis Medical College in 1893 but by the end of his second year his funds were exhausted and he returned to the country where he worked for as little as 50 cents a day until he had again accumulated the funds necessary to complete his medical education. He graduated in 1897 and was given the position of resident obstetrician at the old St. Louis Medical College, located then on 18th and Locust streets.

His industry, his studious habits and sturdy character attracted the attention of the late Dr. John P. Bryson who took him into his office as his first assistant. When Dr. Bryson died, in 1903, Dr. Amos went into the general practice of medicine.

In 1908 Dr. Amos married Miss Ida May Holtzman who bore him two sons, Newton W., the second, and

G. Wade, who survive him. The happiness of his home was his chief concern in life. Its attainment was his chief reward.

Like the faithful doctor of the old school, Dr. Amos worked until the moment of his taking off. On May 6 he kept his last office appointment, went home to rest and at 2:30 in the afternoon he quietly passed from the sleep of rest to rest eternal.

He remained faithful to his Alma Mater, serving humbly in her clinics from his graduation to his death. I can think of nothing finer to say of this genial, kindly, unselfish servant of the sick and afflicted, this loving father, this faithful spouse, this loyal friend, than to repeat what John Boyle O'Reilly wrote when John Mitchell died.

Dead, but his death was fitting
His life to its utmost breath
Was charted upon the Sea of Right
And is sealed with the seal of Death.

—R. E. K. in the *Bulletin* of the St. Louis Medical Society.

CHARLES W. SCHAUB, M.D.

To do justice to Charles W. Schaub's splendid character in a few minutes is impossible after knowing him as a classmate and through daily contact and a friend of forty-four years, a friendship that grew into an indescribable affection, as men have for true men, a confidence so encouraging to me. I served with his many colleagues as his family physician and my confreres will say it was always a privilege to be of service to Dr. Schaub and his family. His appreciation so sincere was expressed in a manner endearing him to all of us.

Few of the 1894 class of Missouri Medical College remained in St. Louis, but are scattered to near and far states. In these forty-four years, those whom I have contacted on their visits to St. Louis, the first question asked would be "how is Charles Schaub" and many would go to his North St. Louis home to visit and to talk.

Several of our old classmates had sons or daughters they sent to St. Louis for vocational or professional training or to work. Dr. Schaub's home was their rendezvous, to spend an occasional hour; he assumed a sort of sponsorship over the children of his classmates. His "come again" was meant, not merely a figure of speech.

With his attractive, sincere personality and his professional honesty and uprightness, he, after graduation, immediately entered practice and in but a few years had built up a large and appreciative clientele, as loyal to him, as he so richly deserved. Really, his growing work was the pleasant envy of many of us less fortunate in our beginning. Dr. Schaub likewise was held in high esteem by all his colleagues of his vast North St. Louis neighborhood. He was honest and honorable to them and they likewise to him. He professed no super-ability like unfortunately so many do. He considered medicine as an art, not strictly a science. His idea was to give service, be honest with his patients, be tolerant. He was quick to get advice of a consultant, and would earnestly follow such and most of the time one had to agree to his plan and treatment as just and correct. In other words, he was deeply conscientious.

Dr. Schaub was married to Miss Emma Kiefhaber in January, 1898. To this union two daughters were born. His family life was an extremely happy one one can surmise. They kept "welcome" at all times over their portals.

Dr. Schaub was made an honor member of this Society in 1933.

None of us saw Dr. Schaub in recent years at our Medical Society meetings. When there he came quietly and left quietly, every hour thinking of his invalid wife's need of him. It was real; his devotion was worthy of emulations and that noble wife in her daily misery, deserved it. Her sudden ending was due to cerebral hemorrhage and Dr. Schaub never recovered from her passing. In July, 1930, Dr. Schaub attempted to get out of bed, but during his nap, he had suffered a right-sided hemiplegia and his active work ended then and there. His passing to that great reward was on February 3, 1935, aged 67. He was a true family physician and friend.

The love in which he was held was attested by the large gathering of all classes to pay that last tribute to Dr. Charles Schaub, on February 6, 1935, at his funeral.

May I quote the little verse, oft quoted, so appropriate for those who knew and admired him and to him who so richly deserved it:

Green grow the grasses o'er your grave,
Friend of our better days,
None knew you, but to love you,
None names you, but in praise.

—L. H. B. in the *Bulletin* of the St. Louis Medical Society.

PORTER D. BLACKBURN, M.D.

To have known Dr. Blackburn was to have loved him. Easy-going, whole-hearted, everyone who met this plain, honest man became attached to him because of the openness and charity which dwelt in his soul. There was bravery there too; but a few months previous to his death, he calmly and methodically talked over his affairs with his secretary, instructing her how to dispose of his effects upon his death, and particularly emphasizing that she say not a word of the conversation to Mrs. Blackburn.

He did not want the wife who had been of such great help to him through many years of his life to be distressed over what he knew to be soon coming. He died March 12, 1935.

To find out what kind of a man a doctor is, the least fallible way, it seems to me, is not to go to his patients for to them he is prevaillingly a hero but to go to his fellow physicians, those who come in contact with him every day, have transactions with him and see him when he has stepped out of his character. Then you learn if the man has been fair and honest in his dealings with his fellows, if he has, by the world-old rule, treated them the way he wanted to be treated.

Of Dr. Blackburn, those of us who knew him at school, later in the City Hospital and still later in the private practice of medicine, and through this time felt the even warmth and kindness of his heart under every trying condition, not one of us but returns that warmth and kindness to his spirit which is still with us.—L. S. in the *Bulletin* of the St. Louis Medical Society.

Charles E. Hamilton and Harry Fredd, Brooklyn (Journal A. M. A., Aug. 10, 1935), discuss the incidence, diagnosis, mode of development, symptoms and prognosis of lower lobe tuberculosis and report ten cases of the disease. They found no involvement of the upper lobes in any of the patients. The history and the clinical course of the disease are the most valuable aids to a tentative diagnosis. The authors conclude that negative sputum examinations do not rule out lower lobe tuberculosis.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1935

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Ste. Genevieve County Medical Society,
December 12, 1934.

Chariton County Medical Society, January 3, 1935.

Perry County Medical Society, January 4, 1935.

Moniteau County Medical Society, January 10, 1935.

Camden County Medical Society, February 26, 1935.

Schuyler County Medical Society, March 18, 1935.

Lewis County Medical Society, April 2, 1935.

Holt County Medical Society, April 18, 1935.

Pike County Medical Society, May 15, 1935.

Saline County Medical Society, May 21, 1935.

Benton County Medical Society, July 9, 1935.

BUCHANAN COUNTY MEDICAL SOCIETY

The Buchanan County Medical Society met June 5 with seventeen members present. The meeting was called to order by Dr. J. M. Allaman, vice president.

As there were only seventeen members present and the quorum is twenty-one no business was transacted and the meeting was adjourned.

Meeting of July 3

The joint meeting of the Nodaway and the Buchanan county medical societies convened July 3 with twenty-six members and thirty-four guests present. Dr. E. F. Cook, St. Joseph, president of the Buchanan County Medical Society, presided. The meeting was preceded by a basket picnic.

Dr. Cook welcomed the members of the Nodaway County Medical Society and expressed the appreciation of the Society to the members of the Woman's Auxiliary for their efforts in making the basket picnic a success.

Dr. Cook introduced Dr. Charles D. Humbert, Barnard, and Dr. W. R. Jackson, Maryville, president and secretary, respectively, of the Nodaway County Medical Society. Each responded with a short talk.

Dr. T. L. Howden, St. Joseph, chairman of the program committee, was introduced by Dr. Cook, who in turn introduced Dr. Wilbur A. Baker, Kansas City, who read an interesting paper on "Sick Headaches."

The scientific meeting adjourned and an informal get-together meeting of the doctors and their wives followed.

EARL WHITSELL, M.D., Secretary.

CAPE GIRARDEAU COUNTY MEDICAL SOCIETY

The Cape Girardeau County Medical Society met in Jackson at the Court House, July 8. Dr. D. I. L. Seabough, Cape Girardeau, president, called the meeting to order. Members present were Drs. D. G. Siebert and B. W. Hays, Jackson; J. H. Cochran, O. L. Seabough, P. W. Nussbaum, D. Elrod and C. A. W. Zimmermann, Cape Girardeau.

Dr. M. H. Shelby, Cape Girardeau, was instructed to secure a motion picture machine for the next meeting.

Dr. J. H. Cochran, Cape Girardeau, reported a meeting his committee had had with the Parent-Teacher Association relative to the examination of children of preschool age. The committee called attention to the voluminous blank which the association presented, it requiring even a more extensive examination and more recording than is required by insurance companies, the latter paying \$5 per examination. The committee suggested that examinations be made by the family physicians and reports rendered in their own way; that under such conditions complete examinations could be made for a fee which would not be burdensome to parents. The Parent-Teacher Association insisted that their blanks would have to be used and the committee fixed a charge of \$5 for each examination. The Parent-Teacher Association stated that they would have the children examined in their own way without waiting any action of the Society on the committee's report. Full support was given Dr. Cochran's committee for its action by the Society.

Dr. P. W. Nussbaum, Cape Girardeau, read an instructive paper on "The Closed Bladder as Compared to the Open Bladder in Urologic Surgery," which stimulated animated discussion.

C. A. W. ZIMMERMANN, M.D., Secretary.

GREENE COUNTY MEDICAL SOCIETY

The Greene County Medical Society met June 28 at the Public Library in Springfield with twenty-seven present. Drs. H. J. Wise, Sparta, D. C. McCraw, Bolivar, and R. R. Farthing, Ozark, were visitors.

The scientific program consisted of a paper by Dr. Buford G. Hamilton, Kansas City, on "Toxemia of Pregnancy," and one by Dr. H. L. Jones, Kansas City, on "Heart Disease Complicating Pregnancy." Dr. Hamilton outlined the symptoms and signs which contribute to the diagnosis and methods of treatment that are most generally accepted. He called particular attention to the need of prenatal care and immediate medical care of pre-eclamptic patients.

After considerable discussion the meeting was adjourned at 10 p. m.

JOHN WILLIAMS, M.D., Secretary.

WOMAN'S AUXILIARY

THE ATLANTIC CITY CONVENTION

The Woman's Auxiliary to the American Medical Association held its thirteenth annual convention at Atlantic City in June. The increase in enthusiasm and membership was outstanding. Almost every state reported a gain in membership. New York was welcomed as the newest state to come into the Auxiliary and North Dakota is in the process of being organized. Over a thousand women were registered and in spite of the many attractions of Atlantic City every session was well attended, the women following with

close attention all reports and discussions. The president, Mrs. Robert Tomlinson, Wilmington, Delaware, presided at the sessions.

At the general meeting of the American Medical Association held in the vast auditorium, said to be the largest in the world, the doctors and their wives were formally welcomed in five short speeches. The president of the Atlantic City Medical Society said the wives of the Atlantic City doctors had been so busy preparing for the various functions that their husbands remembered them only in a general way. Dr. J. C. Meakens, Montreal, president of the Canadian Medical Association, and Dr. James S. McLester, Birmingham, Alabama, president of the American Medical Association, were the chief speakers of the evening.

There were several luncheons and dinners and a tea and musicale, at which the Canadian women were most welcome guests. At one luncheon the special guest was Dr. Allen R. Dafoe who delighted the women by speaking about the quintuplets and answering numerous questions about them. Dr. Dafoe and his brother, a pediatrician from Toronto, had an exhibit of charts and photographs of the quintuplets at the auditorium for which they received a gold medal from the American Medical Association.

The Woman's Auxiliary had an exhibit of charts, scrapbooks showing the activities of the various states, sample layettes and sewing. The Pennsylvania Auxiliary sent an exhibit of dolls dressed to represent the costumes of nurses through the centuries.

The new president of the National Auxiliary is Mrs. Rogers N. Herbert, Nashville, Tennessee. Her husband is a surgeon and is a member of the faculty of Vanderbilt Hospital. Mrs. Herbert is a graduate of Martin College and is the first vice president of the Tennessee Federation of Women's Clubs.

The president-elect is Mrs. Robert Fitzgerald, Wauwatosa, Wisconsin; she formerly edited the *New Letter*.

The Officers of the Missouri Auxiliary

The new president of the Missouri Auxiliary is Mrs. M. Pinson Neal, Columbia, wife of Dr. Neal of the medical faculty of the University of Missouri. Mrs. Neal was born and educated in New York City and is a graduate nurse. She occupied positions of responsibility in her field in New York City and was for six years superintendent of Winyah Sanitarium, Asheville, North Carolina. With such an exceptional training Mrs. Neal is qualified to make an unusual president.

The other officers are: Adviser, Dr. J. F. Harrison, Mexico; president-elect, Mrs. Walter Kirchner, St. Louis; recording secretary, Mrs. J. Q. Cope, Lexington; corresponding secretary, Mrs. Frank E. Dexheimer, Columbia; treasurer, Mrs. Paul F. Cole, Springfield; auditor, Mrs. Frank L. Davis, St. Louis; parliamentarian, Mrs. Frederick S. Haeberle, St. Louis; vice presidents, Mrs. Charles Werner, St. Joseph; Mrs. William R. Patterson, Warrensburg; Mrs. Paul R. Williams, Cape Girardeau, and Mrs. Herbert S. Valentine, Kansas City.

Chairmen of Standing Committees are: Program, Mrs. Owen W. D. Craig, St. Joseph; *Hygeia*, Mrs. W. E. Koppenbrink, Higginsville; revisions, Mrs. Hudson Talbott, St. Louis; essay contest, Mrs. John O'Connell, Overland; public relations, Mrs. W. L. Allee, Eldon; finance, Mrs. Irl Kraus, Jefferson City; press and publicity, Mrs. W. H. Goodson, Liberty; archives, Mrs. Walter C. G. Kirchner, St. Louis, and legislation, Mrs. R. C. Haynes, Marshall.

BOOK REVIEWS

ANNUAL REPRINTS OF THE REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR 1934, WITH THE COMMENTS THAT HAVE APPEARED IN THE JOURNAL. Chicago: American Medical Association. 1934. Price \$1.

Each succeeding volume of reports of the Council reveals more of the long and successful fight in the interest of rational therapeutics. The Council is no longer chiefly concerned with noisome proprietaries and yet this latest volume contains reports on such articles as "Vita-Cell," a secret preparation marketed with exaggerated claims, and "Raylos," a shotgun preparation marketed in a way to promote its ill advised use by the public. Most of the "unacceptable" reports in this volume are concerned with products that may have some merit but are not offered to the public in a way which experience has taught the Council is necessary before a therapeutic agent is acceptable. Such products are Iodine Dusting Powder (Sulzberger), rejected for lack of clinical evidence of its advantage over one of its constituents; Pernoston, rejected because of lack of clinical evidence to justify routine intravenous injection of barbital compounds; Di-Hydranol, a claimed bactericidal agent proposed for use as an "intestinal antiseptic," a claim not supported by sufficient clinical evidence; and Squibb Adex Tablets, a product containing a concentrate of vitamins A and D, for which the firm could not agree to adopt a more informative name.

To those who have followed the Council's investigation of *B. acidophilus* therapy, the report "Acidophilus Bacillus Liquid-Mulford and Mulford Acidophilus Bacillus Block Omitted from N. N. R." will be of interest. The Council has apparently not yet reached an ultimate conclusion concerning acidophilus therapy, but it has for years held that no product could be expected to be of value unless it could show at least one hundred million viable *B. acidophilus* organisms at the "date of expiration." Competent bacteriologic examination showed that the two preparations here reported were inferior to this standard. Further grounds for omission were the failure of the manufacturer to comply with certain stipulations in regard to labels and advertising. Another noteworthy omission is that of Alpha-Naphco and its dosage forms, omitted because the Council on reconsideration found that it is a weak antiseptic.

The Council also issues preliminary reports which define the status of new preparations for which the evidence is not yet sufficient to justify their presentation to the medical profession generally. Preliminary reports do not imply rejection but rather postponement of consideration until more evidence is reported by competent investigators. These reports are the outposts of therapeutic progress and as such are valuable sources of information to physicians. In this volume there are preliminary reports on Adrenal Cortex Extract, concerned mostly with scientific terminology, Cysteine Hydrochloride, Dihydroxy-Anthranol (Anthralin), Gastric Mucin, Hemoprotein (Brooks), Phenylmercuric Nitrate and Phenylmercuric Chloride.

Illustrative of the Council's efforts to keep those concerned informed of the basis for its actions are the "Recent Revisions or Elaborations of the Council's Rules of Interest to Manufacturers and the Medical Profession," which have appeared in the last two vol-

umes. These inform the profession of the various problems which arise and the care given to their consideration. To be commended also is the "Report on Sterility of Ampule Preparations."

NEW AND NONOFFICIAL REMEDIES, 1935. Containing Descriptions of the Articles Which Stand Accepted by the Council on Pharmacy and Chemistry of the American Medical Association on January 1, 1935. Chicago: American Medical Association. 1935. Price \$1.50.

In this book the Council on Pharmacy and Chemistry lists and describes the medicinal preparations that it has found acceptable for general use by the medical profession. A glance at the list of the Council members and the long list of consultants appearing in the first part of the book gives ample warrant for the authority of the Council's selections.

Not only does the Council "accept" new preparations but from time to time it omits those which have been accepted but which have not with the lapse of time upheld their original promise of therapeutic merit. The list of omissions for 1934 shows that the Council has been mainly concerned in this respect with *B. acidophilus* preparations and with antiseptics. Several preparations of each class have been omitted. The list of admissions does not reveal the presence of any preparation that promises to be epoch making in the sense that insulin was, for instance. However, the following newly accepted preparations are noteworthy; Carbarone, an arsenical used chiefly in the treatment of amebiasis (the Council published a special report on this drug, supplementing the preliminary report of 1932); Hippuran and Diodrast, two different types of urographic contrast mediums; Carotene, the precursor of vitamin A; Dilaudid, a substitute for morphine; Neo-Synephrin Hydrochloride, which has a number of advantages as a vasoconstrictor over synephrin tartrate; and Diethane, which represents a type of local anesthetic entirely different chemically from any heretofore accepted for N. N. R.

The description of products containing vitamins A and/or D have been revised to give the potencies in terms of the recently adopted pharmacopeial units, thus bringing some measure of uniformity into this heretofore chaotic field. No doubt the book will be revised next year to conform with the new Pharmacopeia in its entirety.

A valuable feature of the book is the grouping of preparations in classes. Each of these is introduced by a general discussion of the group. Thus the silver preparations, the iodine preparations, the arsenic preparations, the animal organ preparations and the biologic products are each preceded by a general discussion of the particular group. These general articles compare the value of the products included in the group with similar pharmacopeial and other established drugs which it is proposed that these proprietary preparations shall supplement or supplant.

Physicians who wish to know why a given proprietary is not described in New and Nonofficial Remedies will find the "Bibliographical Index to Proprietary and Unofficial Articles not Included in N. N. R." of much value. In this section (in the back of the book) are given references to published articles dealing with preparations that have not been accepted. These include references to the Reports of the Council, to Reports of the A. M. A. Chemical Laboratory and to articles that have appeared in the JOURNAL.

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THE OLD AND THE NEW IN MANAGEMENT OF MALE GONORRHEA

A CLINICAL REVIEW

A. LLOYD STOCKWELL, M.D.

KANSAS CITY, MO.

"Blennorrhoea of the male is probably the most frequent disease with which the practical physician has to deal. With it he usually begins his early practice and until the end it causes him many anxious hours. Frequent as is the disease it is equally ungrateful as regards a positive and radical cure."

These words of the great student Finger are almost as true today as they were forty years ago. My aim in this paper is to present a brief *historical résumé* and *clinical pathology*, the progressive stages of gonorrhea, and *outline the classical therapy*, including the newer therapeutic researches that have appeared in recent literature.

As to the time of the appearance of gonorrhea on this earth historians vary. Hill² quotes Dabry as saying the Chinese Emperor, Ho-Ang-Ti, thirty-six centuries before Christ, described the disease. Moses evidently mentioned it in Leviticus 15:2, although Milton³ does not agree with this. Juvenal, Persius and Galen had seen gonorrhea, or a urethral discharge without erection. Rhazes, the Persian, about 932 describes a disease that could have been gonorrhea. Avicenna, then Constantine the African in the eleventh century described the use of leaden sounds for stricture after a purulent discharge. Many writers considered the illness a seminal emission, hence the names *gonos* (semen) *rheoa* (run).

The appearance of syphilis in the sixteenth century (1502) obscured medical opinion, and even though the brilliant charlatan Paracelsus did describe and differentiate gonorrhea from syphilis (1527) few seemed to believe him.

The later historians were Sydenham, 1680, and Cockburn, 1728. The great Hunter did much to retard progress by his daring but unfortunate experiment on himself in May, 1767, when he made one incision in his own glans penis, another in the prepuce and inoculated them with pus from an infected patient's urethra. The wounds were cauterized but he developed what we know now as classical syphilis, and he concluded that gonorrhea was merely a symptom and part of syphilis; a view long held. Not until the classical inoculation experiment of Bell (1794) and Ricord (1799) was gonorrhea proved to be a separate entity from syphilis. Fauconnier⁴ performed an autopsy on a man of 32 who died of facial erysipelas who also had an old gonorrhea and established the first conclusive tissue study on gonorrhea. Neisser settled the bacterial origin of gonorrhea by isolation of the gonococcus in 1879.

Some old remedies used empirically have come down to us; a few useful, many discarded: Oil of sandalwood, introduced by Markgraf and Pison in 1648; turpentine locally, by Swediauer in 1798; lead acetate and zinc acetate, by Bertrandi in 1790. Red precipitate caustic was a favorite with Wiseman, physician to Charles II. Bougies were used by Faber in 1773 and Hunter in 1786. Silver nitrate in strong solution, from 20 per cent to 30 per cent, as urethral injection was used by Ricord in 1800. Crawford an English army surgeon in India introduced cubebs (fruit of piper methysticum) in 1818. Silver nitrate as a dilute urethral injection was introduced by Johnston and Barklet in America, and introduced to Europe by Carmichel, 1818. Chloroform in the urethra was used by Venot in 1850, and tannin by Zeller in 1875. Potassium permanganate in strong solution was introduced by Dr. Rich of Canada in 1864, and as dilute solution by Bresgen in 1867.

Oral medication was usually some mixture of copaiba and cubebs or opium. The urethral medications were practically all given with hand syringes similar to one designed by Blegney in

Read before the Jackson County Medical Society, March 5, 1935.

1683 and similar to the hard rubber ones seen in drug stores today.

Many of the medicaments were placed in the urethra through long hollow sounds attached to syringes, as described by Vidal in 1850 and Diday in 1858, and modernized by Ultzman in 1883. In 1892 Janet introduced irrigation of the urethra through into the bladder, using potassium permanganate. Valentine⁶ popularized the method in 1900 in America. Warm water injections to anterior urethra, permanganate irrigation, silver nitrate injection, use of a multitude of instruments to dilate and cut stricture, and a host of ancient drug mixtures were the usual treatments.

Today, there are hopeful signs of using the wise assertion of Ernest Finger that "the gonococci can be acted on in two ways, either by directly destroying them, or indirectly by producing a change in their soil, the mucous membrane, which is unfavorable to their proliferation." To understand gonorrhea, one must understand that it is a disease of tissue penetration. "No penetration, no gonorrhea."¹¹

The fossa navicularis is practically immune to gonococci penetration because it is squamous epithelium. The pendulous and bulbous anterior urethra has a columnar epithelium surface, is extremely susceptible to penetration, slow with immunity responses, and has some tendency toward chronicity if it does not have free drainage or is traumatised. It is complicated by the lacunae on its anterior surface and the glands of Littre throughout its middle two thirds. The membranous and prostatic portions of the urethra are transitional cell epithelium firmly attached to subjacent structures, are not penetrated by the gonococci, have more rapid immunity responses, become involved only after inadequate drainage, trauma, or self-abuse and then rapidly clear up with removal of the cause. The trigone is transitional epithelium loosely attached to subjacent structures and is not invaded by the gonococci. The adnexal structures, i. e., prostate, seminal vesicles and epididymis, are complex columnar epithelium glandular structures; readily penetrated by the gonococci, have limited if any immunity response, extremely poor drainage and tend toward high degree of chronicity.

Therefore, it is the treatment of the patient and not the discharge, stimulation of the epithelium and not chemical destruction of the gonococci that produce best results, because no chemical yet available will destroy the submucosal bacteria. The physiological factors are local and general and controlled by treatment. The urethral mucosa is kept healthy, the local and general immunity stimulated and compli-

cations prevented by the doctor in using local therapy, biologic products and absence of over-treatment. The patient controls the care of himself, meaning abstinence from alcohol, sex stimulation, fatigue and violent exercise; ordinary exercise is permissible. The anatomical factors are free drainage. The physician produces these by meatotomy (even in presence of pus), prostatic and vesicle massage, vasopuncture and injection to empty the seminal vesicles, epididymotomy, dilatation of urethral strictures to obliteration, and where indicated, internal (rarely) and external urethrotomy. The outstanding feature must be extreme gentleness, and if any error is likely to be made, err on the side of under-treatment.

Acute Anterior.—A single man, aged 21 years, presents an acute purulent urethral discharge, a pouting red meatus, history of this being first offense, exposure only 6 to 8 days before, and an acute depressive psychosis of worry, wondering if he will ever be normal again. Smear is made from a swab introduced into urethra and shows intracellular gram negative diplococci, with plenty of fresh pus cells, representing a healthy gonotoxin response. The first glass of urine cloudy, with shreds, the second glass mostly clear.

He is immediately informed that you are a doctor, not a magician and that he won't get well in one, two or three weeks but more than likely it will require five or six weeks if he exercises excellent behavior. His own cooperation means he must have no alcohol, no sexual stimulation, not get greatly fatigued nor indulge in strenuous exercises. Otherwise, he may do as he pleases except stop taking out his penis ten or more times a day to see how much pus he can squeeze out of it. Treatment may be started immediately (Pelouze⁵) or delayed until edema of meatus subsides (Jeck,¹² Wolbarst¹³). A meatotomy is done if needed to produce adequate drainage of the urethra, or it is well to remember that a pinhole meatus is one common cause of chronicity.

Sodium citrate, 4 grams per 24 hours, is prescribed. Various authorities agree with me that oil sandalwood has no specific value in gonorrhea and only rarely is a patient benefited more by it than by alkalis (Wolbarst,¹³ Boyd,¹⁴ Herrold¹⁵). The so-called urinary antiseptics, serenium, pyridium and hexamethylenamine have little real value as oral therapy. Locally, the urethra is injected by B-D hand syringe, one fourth ounce size, one third syringeful of 1:8000 neutral acriflavine being used after the bladder is emptied, and the solution retained five minutes, as recommended by Boyd.¹⁴ The patient comes every day to have this done for

10 days and uses nothing at home. The patient is not allowed to use acriflavine himself as he may disappear from medical care and use it indiscriminately. It has power to produce submucosal, painless, dense strictures if used over a long period. By this time the acute stage has subsided and patient has seen the use of the syringe enough that he knows how, and is given a 5 per cent neosilvol or 5 per cent argyrol solution to use daily at home (Pelouze⁴ has shown that even a 10 per cent solution is irritating to urethral mucosa), or a 1:2000 silvovogon (organic silver cyanide) solution. The latter being colorless and stainless the patient may easier disguise his home treatment.

In the office, every third day silver nitrate 1:10,000; then 1:8000 is injected during the next two weeks; the fifth and sixth week the patient is allowed to use $\frac{1}{4}$ per cent protargol once daily at home, and acriflavine again used in the office twice a week. Once each week from the beginning of treatment he is given 0.1 cc. Corbus-Ferry gonococcus filtrate, or three times a week 0.1 to 0.2 cc. gonococcus undenatured bacterial antigen (Kreuger) intracutaneously. When both glasses of urine have been clear and no discharge observed for one week, and if a smear shows no gonococci or only an occasional one (this often occurs the fourth week of a well controlled case), a comfortably-fitting, firm, hollow sound is passed as far as the bulbous urethra only and 5 per cent argyrol is left in urethra. This stimulates clearing up of the submucosal infection. At the end of a week the sound is gently passed again and the anterior urethra gently massaged over it, to empty the glands of Littre and the lacunae of Morgagni. If there is no reaction the criteria of cure are established, i. e., negative reaction after (1) passage of firm fitting sound, (2) massage of prostate, (3) no treatment, (4) sex intercourse once (using protection for partner), (5) use of moderate amount of wine or alcohol, (6) negative complement fixation reaction of blood (ordinarily no reaction observed unless there is or has been a posterior infection). A negative reaction to 0.1 cc. Corbus-Ferry filtrate intracutaneously (according to recent work of Robert Cummings)¹⁵ used as a criterion of cure has not been consistently of value in my last 23 clinically cured cases. Three weeks after negative smears and absence of all signs of gonorrhea, 9 of the 23 cases showed skin reactions of from one to two inches erythema. King²⁷ recommends use of cultural methods according to Price's technic in ruling out gonorrhea as a residual infection in criteria of cure but it is not generally accepted as at all useful.

If the majority of these findings are negative he is dismissed on probation for three months, advised to use condom in sex intercourse and return for observation and reexamination of prostate smear.

I agree with Keyes,¹⁶ that most urologists of today do not use potassium permanganate irrigation as introduced in 1894 by Janet. It produces possible fracture of urethral mucosa, certain amount of shock and the grave danger of introducing the infection further than the anterior urethra. Kohnstomm and Cave¹⁷ show opaque media in seminal vesicles from ordinary irrigation technic. However, as a low hydrostatic douche of the anterior urethra it has some advantages as outlined by Lowsley and Kirwin,²⁸ Burke,¹⁸ and Pelouze.⁵

The newer biological products, Corbus-Ferry gonococcus filtrate and undenatured bacterial antigen (Krueger), have been well reported by Robert Cummings¹⁹ who is very enthusiastic about them and R. Herrold¹⁵ who feels their use has no effect on course of the disease. My experience with 20 cases using Corbus-Ferry gonococcus filtrate in private patients (12 acute and 8 either simple posterior alone or also adnexal involvement) is that the clinical course has not been altered in any way. It is my intention to use it, alone in some patients and combined with usual therapy in others, until I have 100 cases from which to classify results. I have 9 cases under observation using Krueger's preparation but can give no conclusion as yet. Of course if we can accept the idea that gonococcus produces both an endotoxin and exotoxin, simultaneous administration of the new products, Corbus-Ferry filtrate and undenatured bacterial antigen of Krueger, should produce an immunological cure if such is possible in gonorrhea. I have used such in three cases with no other treatment, and the course of the disease ran 7, 9 and 10 weeks, respectively, without complications, a result indicating no advantage over the classical local treatment.

Posterior Urethritis.—If our patient in the fourth week had been indiscrete, intoxicated, indulged in sexual intercourse, and fractured a few more of the ten commandments within a day or so, he would have come in saying, "Doctor, I have a pain when I urinate. I woke up last night with a painful erection and involuntary emission and this morning I had a lot of discharge and my urine burns like fire." Both glasses of urine would be cloudy and he may or may not have adnexal involvement. I agree with Wolbarst¹ that the best treatment for acute posterior infection is nothing locally; hot sitz baths, alkalis by mouth, and papaverin and codeine, grain $\frac{1}{4}$ each in a capsule 3 to 4 times a

day; this produces symptomatic relief. An acute posterior infection often subsides within a short time and leaves no residual effect, but more often it becomes subacute to chronic.

Both glasses of urine are cloudy, a persisting discharge is present, the prostate is enlarged, somewhat tender, boggy soft to tightly firm, and the seminal vesicles may or may not be a part of the infection; most often they are also involved. As soon as the acute symptoms subside, gentle massage of prostate and seminal vesicles once every five days following which a deep instillation of 1:5000 acriflavine is made. The patient uses $\frac{1}{4}$ per cent protargol daily. About two or three months will be required to clear up such a case. Once every seven days 0.1 cc. Corbus-Ferry gonococcus filtrate,^{19, 20, 21} or 3 times a week undenatured bacterial antigen 0.1 cc. (Krueger gonococcus), or 5 to 10 cc. sterile milk once or twice to produce temperature and local immunity reaction. The newer biological products have been of some slight value in my experience, but so far as I have been able to observe in eight cases, not at all superior to intramuscular milk (canned sterile, evaporated milk, 5 to 10 cc.), and local heat therapy. Local rectal heat as in Elliott method produced marked relief in many of my subacute posterior cases and is a valuable part of the general therapy. After both glasses of urine clear considerably, a firm-fitting but not painful hollow sound is passed into posterior urethra and 2 per cent silver nitrate deposited in posterior urethra only. In a few days if no reaction occurs it is done again and repeated as indicated by symptoms. The prostate is carefully massaged, at 7 to 10 day intervals. Consistency with these measures in a careful patient will produce a cure.

If there is a chronicity of symptoms, a urethroscopic examination will reveal a badly irritated verumontanum and perhaps even a chronic infection of Littre glands of anterior urethra.¹⁷ The posterior urethra is best treated with 25 per cent to 50 per cent silver nitrate on the verumontanum or granulations or the electrocoagulation spark may be used. In about seven weeks the patient should be definitely on the road to recovery.

If the patient persists in inadequate drainage the wise, careful use at ten day intervals once or twice of a Kollman dilator to posterior urethra will release some of the infection submerged in the adnexal gland structures and also make for better drainage.

The patient is told not to expose his sexual partner and to use a condom for at least six months, and by all means to present himself for prostate massage at least once every twenty days.

Epididymitis.—If the patient presents the above-mentioned symptoms, but during his acute posterior infection complains of a swollen, sore testicle he has an epididymitis. If possible, he should be kept in bed for 48 to 72 hours with a simple support for his testicle, well padded. Ten cc. calcium gluconate intravenously should be given once or twice a day and simple sedatives by mouth; otherwise, it is treated as an acute posterior infection. L. M. Beilen²² produces marked relief by autohemotherapy, giving the patient 1 cc. of his own blood directly into the affected testicle with a sharp hypodermic needle. In sixty cases, 14 to 65 years of age, encouraging results occurred. R. D. Herrold¹⁵ also uses autohemotherapy rather than foreign protein. After the acute stage has subsided the patient should be informed of the value of vasotomy and injection of argyrol to wash out the seminal vesicles. This is his best preventive measure against sterility and gonorrheal arthritis, but it should be done only by an expert as an inexperienced operator can do more harm than good.

If there is no early response to therapy a careful epididymotomy should be done. Of course, this procedure is imperative in the presence of localizing fluctuation. He will also be about 90 to 120 days getting completely free of his illness.

Chronic Prostatitis and Vesiculitis Stricture.—A man, aged 35, complains of nocturia, dysuria, occasional cloudiness of his urine, pus in his urethra, always has a "morning drop,"¹⁹ and of late the urinary stream is smaller in caliber, and pain in his back, groin and genitals. Both glasses of urine have shreds. Smear from prostatic massage shows old, autolyzed gonococci bacteria and pus cells. The prostate is large, soft and boggy, as are the seminal vesicles, indicating chronic prostatitis and seminal vesiculitis. He may have a urethral stricture, probably in the bulb, and also just back of the fossa navicularis, two of the more common sites for their occurrence. The anterior urethra is explored with a bulb bougie and the stricture located by the "hang" on pulling back. Steel sounds are best to explore and treat posterior stricture. The best treatment for stricture is that practiced by Vidal³⁰ in 1850; gentle, gradual and persisting dilatation until it is obliterated to allow the urethra to drain. Internal urethrotomy is to be condemned. External urethrotomy followed by sounding is of definite value. Silverman²³ has brought the subject of modern treatment of strictures up to date and agrees that gradual persistent dilatation is the best method. The posterior and adnexal infection is handled as in case 3, except that the patient at hand usually requires urethroscopy

and use of electrocoagulation, or silver nitrate in posterior and occasionally in anterior urethra to control inflammatory reactions of the long irritated tissues. Usually the Kollman dilator is of considerable advantage when properly used, toward the end of treatment for this patient.²⁰ Consistent prostatic and vesicle massage given by one trained in the technic produces very good results.

Hugh Young²⁴ and Williams²⁵ are highly in favor of intravenous mercurochrome,²¹ 10 cc. of 1 per cent per 100 lbs. body-weight, with intramuscular injection at the same time of lactalbumin 5 cc. in slowly progressing posterior infections and those with arthritic complications. Personally, I have used the 1 per cent mercurochrome but I dissolve it in 50 per cent glucose, a procedure originated in 1929 by Redewell.³¹ Favorable results have been seen in arthritis. A simplified autohemotherapy is successfully used by Ingram.²⁶ He withdrew 7 cc. of the patient's own blood in a 20 cc. syringe holding 12 cc. water, and reinjects all of this after hemolysis occurs. The only contraindication is a fast sedimentation rate.

The use of Corbus-Ferry gonococcus filtrate by me in 8 chronic cases has shown very little effect except that it dramatically produced permanent disappearance of gonococci and discharge in one case of subacute prostatitis and vesiculitis.

Arthritis.—In a man 30 to 40 years of age who has gone through a posterior infection and who now has arthritis which is usually quite disabling, the best results follow immobilization of joints in a comfortable, removable plaster mold. If suppuration of a joint occurs, drain and irrigate it with saline. It is advisable to have capable orthopedic consultation. All these patients should have vasotomy and injection of an antiseptic (argyrol, merthiolate, etc.) to rid the seminal vesicle of its infection, which is always the focus for the arthritis. Autohemotherapy, intramuscular foreign protein, intravenous mercurochrome, should be used if indicated; also one of the new biological products given intradermally. Intravenous iodides and salicylates have only occasionally any definite value (Jeck¹²). Ionization with mecholyl (acetyl beta methylcholine chloride) has relieved the pain in joints rapidly in recent cases.

Desjardin³² has recently reported on the use of complicated methods of general hyperpyrexia for treating all stages of gonorrhea and offers statistical evidence of good results. It is of advantage in some instances, I should think, but for two objections; first, it is an institutional form of therapy and thus not useful for many patients, and second, as is the case in any arti-

ficial fever treatment, it is not entirely without danger. I mention diathermy only to say that it has been of little use in my experience, which is corroborated by Pelouze,¹¹ and Wolbarst.¹

CONCLUSIONS

1. There is historical evidence that gonorrhea existed thirty-six centuries before Christ. The use of oil of sandalwood, sounds and silver nitrate were used over a century ago. Ricord, Vidal, Neisser and E. Finger established scientific basis for the study of gonorrhea.

2. Gonorrhea is a disease of tissue penetration and treatment of bacteria-producing tissue is more important than treating the surface infection.

3. Careful treatment of acute anterior infection will prevent most of the possible complications.

4. Chronic extensions of the disease are best treated by the urologist as a result of his long experience.

5. The best modern therapy is a combination of acriflavine locally, silver salts, mild judicious instrumentation, sound surgical principles, and intravenous and intramuscular biological and chemical substances.

6. The newer biological products (Corbus-Ferry) gonococcus filtrate and undenatured bacterial antigen (gonococcus of Krueger) have not produced any better results in my hands than modern classical therapy.

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BIBLIOGRAPHY

1. Wolbarst, Abr.: *Gonococcal Infection in the Male*, St. Louis, C. V. Mosby Co., 1930.
2. Hill, Berkley: *Syphilis and Local Contagious Diseases*, London, p. 6, 1868.
3. Milton, John L.: *Pathology and Treatment of Gonorrhea*, New York, Wm. Wood & Co., 1884.
4. Finger, Ernest: *Die Blennorrhoe der Sexualorgane*, Wien, 1900, English edition, *Gonorrhea*, New York, Wm. Wood & Co., 1894.
5. Pelouze, P. S.: *Gonorrhea in Male and Female*, Ed. 2, Philadelphia, W. B. Saunders Co.
6. Valentine, Ferd C.: *Irrigation Treatment of Gonorrhea*, New York, Wm. Wood & Co., 1900.
7. Ricord, M.: *Traite Pratique*, Paris, p. 707, 1801.
8. Didey, M.: *Therapeutic des Maladies Veneriennes*, Paris, p. 9, 1876.
9. Neisser, A.: *Eine der Gonorrhoe eigenthumliche mikrokken form*, *Contrallbltd. für Med. Wissenschaften*, No. 28, 1879.
10. Renshaw, A.: *Vaccine Treatment of Gonorrhea*, *Brit. J. Venereal Disease*, London **1**:95, 1925.
11. Pelouze, P. S.: *The Immunologic Aspects of Gonococci Infection*, *J. A. M. A.* **103**:1819, 1934.
12. Jeck, Howard S.: *Present Day Treatment of Gonorrhea in the Male*, *J. A. M. A.* **93**:249, 1929.
13. Wolbarst, Abr.: *Present Day Treatment of Gonorrhea in the Male*, *Am. Jour. Surg.* **4**:280, 1928.
14. Boyd, M. L.: *Acute Anterior Gonorrheal Urethritis Cured With Acriflavine*, *J. Urol.* **19**:89, 1928.
15. Herrold, Russel D.: *Treatment Gonorrhea Based on Laboratory Observation During Disease*, *J. A. M. A.* **103**:1821, 1934.
16. Keyes, E. L.: *Some Phases of Treatment of Gonorrhea*, *New Eng. J. Med.* **209**:989, 1933.
17. Kohnstamm and Cave: *Radiological Examination of Male Urethra*, New York, Wm. Woods & Co., 1925.
18. Burke, E. T.: *Treatment Venereal Disease in General Practice*, London, Faber & Gwyer, p. 101, 1927.

19. Cumming, Robt. E. and Burham, Robt. A.: Experiences With Gonococcus Filtrate, *J. A. M. A.* **104**:181, 1935.
20. Corbus, B. C. and O'Connor, V. J.: Intradermal Injection of Gonococcus Bouillon Filtrate, *J. Urol.* **24**:333, 1930.
21. Corbus, B. C.: Intra Dermal Immunization in Gonorrhea, *J. A. M. A.* **98**:532, 1932.
22. Beilin, L. M.: Whole Blood in Acute Epididymitis, *Illinois Med. J.* **64**:480, 1933.
23. Silverman, R. J.: Treatment of Urethral Strictures, *M. J. Australia* **2**:736, 1933.
24. Young, H. H.: Text Book of Urology, Wm. Wilkins, 1928.
25. Williams, L. H.: Summary of 70 Cases of Gonorrhea Treated With Mercurochrome and Sugar and Foreign Protein, *U. S. N. Medical Bull.* **25**:621, 1929.
26. Ingman, A.: Fiska Lak Handling, 1933: 1051. Reported in Year Book for Urology, 1934. Chicago, Year Book Pub. Co., p. 433.
27. King, A. J.: Criteria of Cure for Gonorrhea, *J. A. M. A.* **104**:178, 1935.
28. Lowsley and Kirwin: Text Book of Urology, Philadelphia, Lea & Febiger, 1926.
29. Raven, Clara: Dissociation of Gonococci, *Exper. Biol. & Med.*, **31**:899, May, 1934.
30. Blackman, George: Vidal on Gonorrhea, New York, Sam S. & Wm. Wood, 1859.
31. Redewell, Potter and Garrison: Intravenous Mercurochrome in Glucose, *J. Urol.* **22**:705 (December) 1929.
32. Desjardin, A. U. et al.: Fever Therapy for Gonococci Infections, *J. A. M. A.* **104**:873-878, 1935.

TUBERCULOUS UVEITIS

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Tuberculosis of the uveal tract is a common disease but it often goes unrecognized. It is to be borne in mind that any insidious, low grade, chronic inflammation of the iris, ciliary body, or chorioid may be tuberculous.

The disease is most commonly seen in juveniles and young or middle aged adults, but it may occur at any age. It is almost always secondary to a latent or arrested primary tuberculous focus in the tracheobronchial, hilar, cervical or other glands, or in the lungs. Inflammation of the uvea rarely or never occurs with active pulmonary tuberculosis and this may perhaps explain the failure to recognize the disease as a cause in many cases of chronic uveitis. The eye may be affected as a result of the implantation of emboli which are carried from the primary focus and lodge in the small vessels of the uvea, or the ocular inflammation may be due to allergy or hypersensitivity of the tissues to toxins liberated by autolysis of the bacilli in the primary lesion.

The pathologic picture in uveal tuberculosis is variable and it often differs from that of a primary lesion, since it is influenced by allergy, immunity and perhaps other unknown factors. Tubercle bacilli carried from the original focus may give rise to a typical tubercle or to a non-specific diffuse inflammation. Allergic lesions are usually of the diffuse exudative type. Oftentimes the inflammation in one part of the

eye is typical of tuberculosis while in other parts it is nonspecific in character; lymphocytes, large mononuclears and giant cells are found in the typical lesions but in other areas there may be only lymphocytes and plasma cells. Caseation is rare.

The diagnosis of tuberculous iridocyclitis or chorioiditis is oftentimes obscure since the clinical picture is variable and demonstration of the primary focus may be difficult. Tuberculous uveitis is frequently bilateral. The onset of the disease is insidious and characteristically there is little or no pain and little evidence of congestion; the inflammation is extremely chronic, tends to relapse and responds slowly or not at all to treatment. The patient usually appears robust and healthy and often the history is not suggestive of former tuberculosis. The primary lesion is ordinarily the result of a mild childhood infection which may have gone unnoticed. A history of childhood association with tuberculous relatives, servants, or friends is of importance. As a rule no evidence of arrested pulmonary lesions is found on physical examination, but often roentgenograms reveal old healed calcified areas in the glands or parenchyma of the lungs, thickening of the pleura, or irregularities in the contour of the diaphragm. Added evidence of tuberculosis may be gained from the response to diagnostic injections of tuberculin; a local or general reaction is suggestive, but only a focal reaction proves the ocular inflammation is tuberculous. Final proof may be had in some cases only after injection of pathologic material into susceptible animals or after microscopic examination of the eye.

Tuberculin is an extract of mycobacteria tuberculosis; it is a protein but as yet the active principle has not been isolated. Many kinds of tuberculin have been described and marketed, among which may be mentioned Koch's Old Tuberculin (O. T.), Koch's Bacillus Emulsion (B. E.), Deny's Bouillon Filtrate (B. F.), Toeniessen's Tebeprotin, and Seibert's Purified Protein Derivative (Tuberculin, P. P. D.). The last is the purest and only such products should be used in the diagnosis of uveal tuberculosis. The reaction in the skin to the diagnostic injection of tuberculin is due to the fact that, following the development of an active primary lesion, an allergy or hypersensitivity of the tissues to tuberculoprotein develops. The tissues are extremely hypersensitive and allergy is strong if the course of the primary disease is favorable, but allergy disappears if the disease is severe. Tuberculin is never used in the presence of active pulmonary lesions since it results in inflammation, exudation and

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necrosis in the extremely hypersensitive tissues about the active primary focus and is followed by dissemination of the disease. The tuberculin reaction is not absolutely specific, however, it can be made almost so by the use of pure products in small graded doses. Latent or arrested tuberculosis is common and almost all adults have evidence of such lesions, consequently a local reaction to tuberculin is not uncommon, a circumstance which further clouds recognition of the etiologic factor in chronic uveitis. Actual proof of tuberculous inflammation in the eye does not lie in the local or general reaction to tuberculin but in the focal reaction. Very mild focal reactions are desirable but severe reactions are dangerous and may result in loss of vision, consequently great care must be used in the dosage of tuberculin. Only fresh dilutions should be employed but it apparently is immaterial whether human or bovine tuberculin is used since they are inter-reactionary. The best diagnostic test is that of Mantoux, i. e., the intradermal injection. The patient is kept in bed for two days and the temperature recorded every two hours. On the third day 0.00002 mg. of purified protein derivative of tuberculin is injected into the skin of the forearm. If no reaction occurs within forty-eight hours a second injection of 0.005 mg. is made. If there is no reaction the test is negative. A negative reaction occurs in those who have not had tuberculosis; it may occur rarely because of the use of inert tuberculin, previous desensitization, a severe active pulmonary infection, or intercurrent diseases such as measles and others. A positive reaction may be local, general or focal. A local reaction at the site of injection appears as an elevated, red, indurated area. A general reaction results in a feeling of malaise and an elevation of temperature. A mild focal reaction is seen as a slightly increased congestion with slight exacerbation of the ocular inflammation. It is to be constantly kept in mind that a positive reaction to a small dose of comparatively pure tuberculin is more indicative of tuberculosis than a reaction to a large dose of an impure product, since the latter may occur in nontuberculous subjects.

The clinical diagnosis of tuberculosis of the anterior uvea is often difficult, although in many cases it requires only careful examination and observation. The disease comes on insidiously and often with no subjective symptoms other than gradual diminution in vision. Pain is infrequent and usually there is little or no congestion. The iridocyclitis may be of the nodular or diffuse type; rarely a conglomerate tubercle is seen.

Nodular iridocyclitis is characterized by the formation of nodules in the stroma of the iris and in the vascular layer and processes of the ciliary body. These nodules are composed of accumulations of lymphocytes, large mononuclears and giant cells. In the iris the nodules usually form near the pupillary margin but they may be situated in the peripheral portion near the angle of the anterior chamber. They appear as small, gray, translucent elevations on the anterior surface of the iris. In and about them there is engorgement of the small vessels. Evanescent, small, gray, transparent nodules (Gilbert-Koeppel nodules) may form at the pupillary margin of the iris. Posterior synechiae are infrequent in this type of iridocyclitis since usually it is not a fibrinoplastic type of inflammation. Small or large lardaceous deposits are seen on the endothelium of the cornea and, in some cases, a reddish gray mass is present in the angle of the anterior chamber.

Diffuse iridocyclitis is much more common, but since it is not always characteristic of tuberculosis it is more difficult of diagnosis. Typically, there is a diffuse low grade inflammation of the iris and ciliary body with the formation of posterior synechiae and large mutton fat deposits on the posterior surface of the cornea. The iris and the vascular layer of the ciliary body are infiltrated with lymphocytes, plasma cells, large mononuclears and occasional giant cells. In other areas there is only lymphocytic infiltration. This type of iridocyclitis is frequently complicated by glaucoma, the so-called cyclitic glaucoma. In the late stages the inflammation may extend to the sclera and cornea and the disease may finally terminate in atrophy of the eyeball.

Conglomerate tubercle of the iris or ciliary body is rare; it usually occurs in children as a massive granuloma which frequently infiltrates the sclera and cornea and terminates in perforation of the globe.

Tuberculosis of the posterior uvea is most common in juveniles and young adults. The clinical appearances differ but isolated chorioid lesions in the vicinity of the nerve head and macula are often due to tuberculosis. An acute type in which bilateral, small, yellow, elevated nodules appear in the chorioid is seen in the terminal stages of acute generalized miliary tuberculosis. However, most cases of tuberculous chorioiditis are chronic and have a tendency to recur.

Solitary or disseminated chorioiditis is common. In the acute stages the vitreous is hazy and in the fundus there appears an indefinite, gray, softly margined, elevated lesion. It is usually situated posterior to the equator, often

in the region of the nerve head or macula. The pathologic area is composed of large mononuclears and giant cells surrounded by lymphocytes with fibrin and albuminous fluid in the surrounding areas. Caseation is rare. Later the vitreous clears and as healing occurs the lesion flattens and becomes white, sharply margined and pigmented. However, pigmentation usually is not so pronounced as in syphilitic and other types of chorioiditis. The lesion heals by fibrosis. Recurrent attacks in which a new lesion appears at the edge or in the vicinity of the old healed area are common.

Diffuse chorioiditis is uncommon. In appearance it is similar to the disseminated type but large coalescing areas of the chorioid are involved.

Conglomerate tubercle of the chorioid occurs in children. The disease is unilateral and the posterior segment of the eye is occupied by a large, yellowish white tumor mass, somewhat similar in appearance to retinoblastoma. There is an iridocyclitis and eventually infiltration and inflammation of the entire eyeball, with perforation and atrophy of the globe.

The differential diagnosis may be confusing. Syphilitic uveitis is more acute, the iris nodules are reddish gray and many synechiae are formed. Syphilitic chorioiditis is usually more diffuse and pigment changes are more pronounced. Gunma is a disease of adults whereas conglomerate tubercle occurs in children. The Wassermann reaction is of importance.

Sympathetic uveitis almost always follows injury or intra-ocular operation. A fibrinoplastic type of inflammation develops, the iris thickens posteriorly, many synechiae form, the chorioid is involved, the retina becomes detached and vision is lost.

Uveitis from focal infection is oftentimes exceedingly difficult to differentiate from the diffuse type of tuberculous iridocyclitis. It is usually acute although it may be chronic. As a rule the final diagnosis is made only after exhaustive studies and even then it is often not proved.

Retinoblastoma may simulate conglomerate tubercle of the chorioid. Both occur in children and may be complicated by an iridocyclitis. In some cases only histopathologic examination settles the diagnosis.

Rare conditions which may be confusing are leukemia, iritis nodosa, leprosy, sporotrichosis, actinomycosis and certain iris or ciliary body tumors.

The treatment of tuberculous uveitis is in great part similar to that of any tuberculous lesion, i. e., attention to hygiene, removal of foci of infection, nourishing foods, rest, fresh air

and sunshine. Generalized ultraviolet irradiation is beneficial but the value of local irradiation is doubtful.

Tuberculin therapy is a reasonable treatment and is undoubtedly of benefit if used intelligently. The allergic lesions improve as the hypersensitivity to tuberculo-protein is reduced and destroyed. Small doses of tuberculin produce a mild reaction in the focus and stimulate phagocytosis and fibrosis. The initial dose must be determined for each patient; it must be small but sufficiently large to produce a mild reaction in the tuberculous focus. The initial dose should be approximately one tenth of the smallest amount which has produced a mild diagnostic skin reaction. Injections are made once a week and each succeeding dose is increased by 50 per cent. After a maximum dose of 0.1 mg. is reached it is repeated once a week over a period of one year.

Local treatment is similar to that employed in other types of uveitis.

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DIFFERENTIAL DIAGNOSIS OF IMAGINARY DISEASES OF THE EAR, NOSE AND THROAT

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In the diagnosis of imaginary diseases of the ear, nose and throat there are three different types which confront the neuropsychiatrist and the otolaryngologist.

First, there are cases which present a definite symptomatology but in which no evidence can be found of an organic lesion to account for the symptoms nor can we demonstrate any functional derangement; second, cases will be seen with a definite line of symptoms with no demonstrable organic lesion but some functional derangement to account for the symptoms; third, there will be patients who have some pathologic lesion or a history of having recovered from one that has brought on a psychoneurosis from which they are still suffering. Later, cases will be cited to illustrate each of the classifications mentioned.

In beginning this discussion the ear will be taken up first to be followed by the nose, pharynx and larynx in the order named.

In the psychoneuroses of the ear there are many conditions that present themselves and it is quite difficult to place them in their order of importance and frequency. We are con-

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fronted with many neuroses involving the internal, middle and external ear. It will not be possible in a paper of this length to discuss the various neuroses of the vestibular apparatus. Our discussion on the ear will be limited to the sensory neuroses and the neuroses of the acoustic nerve.

Politzer¹ in his book on the ear describes a condition called otalgia which is an affection of the sensory nerves supplying the organ of hearing. The attacks are usually intermittent and are characterized by severe tearing and boring pains in the interior of the ear which last several hours and return at irregular intervals. Among the many etiological factors such as anemia, tumors of the brain, new growths in the Gasserian ganglion, caries of the cranial bones and cervical vertebra he feels that hysteria and neurasthenia play an important part. He quotes Gradenigo who reported 319 cases, of which 226 were women and 93 men. After a study of these cases he concludes that a majority of the cases of otalgia are of a hysterical nature. A differential diagnosis is not difficult to make.

In a discussion of neuroses of the acoustic nerve Politzer² states "that functional paralyses of the acoustic nerve are met with which are not caused by any demonstrable anatomical change."

Drs. Hunt and Peters³ state that "uncomplicated deafness is the most difficult of all hysterical symptoms to treat, but mutism is one of the easiest."

They found that most cases of hysterical deafness in the war were associated with mutism. They believe that absolute deafness associated with normal vestibular reactions should be regarded as hysterical. For example, two cases are described which showed absolutely no improvement under the accepted methods of treatment; so they were given ether to the excitement stage. Two small incisions were made in back of ear and a sheet of iron was struck several times by a hammer during the operation. When they regained consciousness hearing was normal.

Dr. Stevenson⁴ mentions several important points in the differential diagnosis of hysterical deafness and other types of deafness. He found in hysterical deafness that the onset was usually sudden, most often bilateral. Hyperesthesia of the auricle, external meatus and tympanic membrane is frequently present. Deafness varies in degree and intensity from day to day. Tuning fork tests point to a nerve deafness. Labyrinthine tests normal. No dizziness and no tinnitus.

As stated in the beginning, there are cases which have had an organic lesion or are still

suffering from such a lesion and this disturbance had precipitated a psychoneurosis. I would like at this point to cite a case which comes under this classification.

REPORT OF CASE

Woman, aged 28 years, presented herself at the clinic Dec. 28, 1931, complaining of headache and earache of the left ear. Had had earache in childhood but no further trouble until three months before coming to the clinic. Had been struck on left side of the head in an automobile accident. From that time on she had considerable pain in the left ear. Upon examination there was found some debris in left canal and crusting on upper part of drum. Our impression was that this was an otomycosis. Patient had no mastoid tenderness. There was no improvement under treatment at the end of a week so the patient was given a prescription for phenol and glycerine. It was recognized at this time that patient was of a very nervous temperament and bromides were given. She made some improvement, but on Jan. 28, 1932, she came back complaining of very severe pain around the left ear; the ear was tender to touch, drum was inflamed slightly but not bulging. No mastoid tenderness. A roentgenogram showed some haziness of left mastoid. Patient was examined in medical department but no physical disabilities were found. Wassermann was negative.

Patient showed improvement and relapses for another month when a second roentgenogram showed an increased cloudiness of the left mastoid cells. Her condition showed some improvement for the next two months when she came in again complaining of very severe pain below the left ear and in the left mastoid. There was no mastoid tenderness but a roentgenogram showed considerable thickening of cell walls of the mastoid and an increased cloudiness. A mastoidectomy was recommended. Patient entered hospital in May, 1932, a little over four months after she was first seen in the clinic. At operation it was found necessary to do a radical mastoidectomy. Hospital convalescence was normal and ear entirely well in three months. However, the patient was having as much pain as before operation, so in September, 1932, she was referred to the neurological department where a diagnosis of aural neurosis was made. Under treatment by the neurologist and frequent trips to the ear department for reassurance that her ear was all right she has made a gradual improvement with occasional relapses. At the present time three years after mastoidectomy the ear remains entirely healed and dry, but about once every month or six weeks the patient comes to the clinic complaining of a little pain in the ear. Upon being assured that the ear is healed and upon application of some oil the patient is entirely relieved. We hope that no more surgical interference is ever indicated in this patient.

In a discussion of imaginary diseases of the nose it is at once evident that a psychoneurosis of this organ is not encountered nearly so frequently as in the ear, pharynx and larynx. Some very interesting conditions, however, may manifest themselves. St. Clair Thompson⁵ describes a very unusual condition which he calls "functional abeyance of nasal respiration." In this type of case a patient will breathe only

through the mouth although the nasal passages and nasopharynx are perfectly free to the passage of air. Not only does he keep the mouth open constantly but if the lips are kept tightly closed he seems to have lost the faculty of making use of the nasal passages and becomes blue from asphyxia. He states that this condition usually occurs in hysterical persons. The following case illustrates well this type of neurosis.

REPORT OF CASE

A girl, aged 15, entered the clinic May 1, 1934, complaining of inability to breathe through her nose and a feeling of something tight in her throat. She stated that three years before while playing she ran into a clothes line. This knocked her down but she suffered no immediate ill effects from the blow as she got up and could talk and breathe normally. About one week later she suddenly became short of breath during the night. She said she could not get her air in. Drinking a glass of water did not relieve the constricted feeling.

Her condition has become progressively worse and she cannot breathe at all through her nose. She says she would suffocate if any one held her mouth shut. She has become so nervous that she has had to quit school.

General physical examination negative. No nasal obstruction. Patient can blow her nose but refuses to inhale through it. She becomes frightened, struggles and cries if one attempts to hold her mouth shut.

A diagram of the nasal and laryngeal air passages and their communication with the oral cavity was made and explained to the patient. She agreed that there was no obstruction between mouth and lung as she could breathe easily through her mouth. A No. 14 rubber catheter was then passed through each nostril and withdrawn from the mouth showing her that there was no obstruction between nose and mouth. Then by holding her mouth shut for only a breath or so at first, as she was still easily frightened, she began breathing through her nose.

She was told to practice nasal breathing every day and when seen at the clinic two weeks later she could breathe through her nose without holding her hand over her mouth but it took a great deal of mental effort. When seen April 28, 1935, a year later, she stated that she had been breathing comfortably through her nose for the last eleven months. She has gained considerably in weight, has gone back to school and feels much better in every way except that she has occasional attacks of a constricted feeling in her throat. She has been put on bromides and it is hoped that this functional neurosis of the throat will be cleared up in a short time.

Speaking of nasal neuroses of the special sense of smell, any of the four conditions, anosmia, hyperosmia, cacosmia and parosmia may be met in psychoneuroses, but their occurrence is relatively infrequent and it hardly seems worth while to take time for their discussion.

Of the sensory neuroses of the nose it might be said of anesthesia that it is generally incomplete and may be left by any of the chronic affections but is most often functional.

Hyperesthesia which is manifested by sneezing occurs under any of three conditions. First, as a result of a pathological reflex such as nasal

polypi, ethmoiditis, sinusitis, etc.; second, when the nerve endings are abnormally sensitive to various stimuli such as heat or cold, certain odors, pollens, etc., and classified under the general heading of nasal allergy, and third, an upset in the central nervous system as shown by the occurrence of this condition in persons who are neurotic, overworked or stricken by ill health or grief.

A differential diagnosis of functional hyperesthesia of the nose and the pathological reflexes will not be difficult if one makes a thorough examination of the nose and the sinuses. Differentiating functional hyperesthesia from nasal allergy may present more difficulties. However, if one remembers that the nasal mucosa in many allergic cases has a characteristic edematous pale color he will find the diagnosis easier. In some instances the assistance of the allergist will be required.

The pharynx seems to be one of the anatomical parts of the human body which nature has especially selected for a demonstration of psychoneuroses. Here we encounter both motor and sensory neuroses frequently associated with similar manifestations in the ear, larynx and esophagus.

A motor neurosis of the pharynx may be tonic or clonic. Clonic spasms of the pharynx may be met in organic disease of the brain, especially the pons and the cerebellum, but are most often a reflex or a functional neurosis. They may be manifested by rhythmic contractions of the posterior pharyngeal wall and occasionally the soft palate, even involving the arytenoids and adductors of the cords. There may be an audible clicking sound which can be heard some distance away. This type of neurosis was well demonstrated in a colored girl, aged 20, who entered our clinic with a rhythmic audible clicking in the throat of about 50-60 per minute. She had this condition for three or four weeks but was in excellent health otherwise except that she had been nervous for two or three months. Examination was negative for any organic lesion and Wassermann negative. She was put on bromides and later tonics and her condition cleared up very quickly.

Of the sensory neuroses of the pharynx, anesthesia, hyperesthesia and paresthesia, it may be said that they are most often found in the individual with a neurotic background. However, these conditions may be due to a peripheral neuritis, bulbar paralysis, pressure on glossopharyngeal nerve and is sometimes found in the anemic, alcoholic or dyspeptic. Hyperesthesia is the condition occurring most frequently and the symptoms in the throat are variable. There may be dryness, burning, tickling, choking, irritation, scraping, a constant hawking or a desire

to swallow, or the feeling as of a foreign body in the throat.

In arriving at a diagnosis it must be remembered that most of the motor and sensory neuroses of the pharynx are functional. Occasionally, however, an intracranial lesion, a disturbance of the vagus or the glossopharyngeal nerves or a local lesion of tuberculosis, lues or malignancy will produce these neuroses.

The larynx is another organ which is frequently involved in psychoneuroses. Here also as in the pharynx we may have either a sensory or a motor disturbance. The motor neuroses far exceed in number the sensory. In the sensory we may find an anesthesia, hyperesthesia or paresthesia.

Anesthesia of the larynx rarely occurs in a neurosis but when it does it is usually due to some central lesion or an acute general infection.

Hyperesthesia and paresthesia are manifested by cough, rawness, burning, tickling, pain, tightness or the feeling as of a foreign body, and have as etiological factors hysteria, anemia, fatigue and excessive use of alcohol. They are found in acute and chronic laryngitis and in people who live in dread of tuberculosis, lues or malignancies. It is generally accepted that hyperesthesia of the larynx is most often found as an early symptom of tuberculosis but next in frequency it occurs as a symptom in hysteria.

Motor neuroses of the larynx produce a spasm of the glottis and may be due to any one of four conditions: (1) Local irritation such as a catarrhal inflammation, tuberculosis, neoplasms or ulcerations; (2) any lesion which irritates the recurrent laryngeal nerve, such as aneurysms, tumors of the mediastinum, goiter or tuberculous glands; (3) a central nerve lesion such as locomotor ataxia, and (4) hysteria or functional disorders.

Probably one of the most frequently encountered neuroses of the ear, nose and throat is functional aphonia which is a bilateral adductor paralysis or paresis found most often in young women but occurring at times in adults or children, male and female. It is characterized as a rule by a sudden onset in one who has a neurotic background. Examination of the larynx shows the inability of the patient to approximate the cords when asked to say "E." However, when they are asked to cough or laugh the cords can be seen to come in contact and a diagnosis of functional paresis is established.

In arriving at a diagnosis of functional sensory neurosis of the larynx one must first rule out a tuberculosis and inasmuch as tuberculous laryngitis is always secondary to pulmonary tuberculosis, a chest examination and roent-

genogram of the chest will be of material assistance. A Wassermann and biopsy if necessary will assist in eliminating lues and malignancy.

In the differential diagnosis of functional motor neurosis or functional aphonia no difficulty will be experienced if one but remembers Semon's law. This law points out that in all progressive organic lesions of the motor nerves to the larynx or their bulbar nuclei the abductor fibres are the first to fail. Their paralysis is followed by that of the internal tensors of the cord (the thyro-arytenoids internus and externus) and lastly by the adductors. If the adductors or tensors are primarily affected it is found with hardly an exception that the paresis is functional.

Dr. O'Malley⁶ states the chief neuroses met with in the war were: (1) Functional aphonia; (2) mutism; (3) loss of volitional coughing; (4) functional deafness. Among a number of cases cited was one of a soldier, aged 20, who immediately following a battle could neither hear nor speak. When seen by the doctor he was carrying a note stating that he had not been able to speak or hear for eight days. Concluding that this was functional, the doctor wrote on a piece of paper that he would restore his speech and hearing. An examination was made with a laryngeal mirror rubbing the posterior pharyngeal wall until a cough reflex was excited and even retching produced. The doctor then wrote upon a piece of paper telling the patient that he could speak and to count up to ten. This he did. One ear of the patient was then douched until he became very dizzy and then the doctor shouted through a speaking tube, "You can hear now?" and he replied, "Yes." The world war improved very materially our knowledge of psychoneuroses of the ear, nose and throat.

Another condition meriting brief discussion is the old familiar and oft recurring "globus hystericus." Little need be said relative to the diagnosis and treatment of this condition. It is easily recognized and usually responds well to treatment. However, there has been some discussion as to just where the functional derangement lies. This has been pretty definitely settled by the use of the esophagoscope. Chevalier Jackson⁷ states that globus hystericus is a spasmodic stenosis of the cricopharyngeus muscle and at esophagoscopy there will be found a marked exaggeration of the usual spasm of this muscle. If the spasm yields, he goes on to say, and a full sized esophagoscope can be passed without further resistance we can be very sure that we are dealing with a spasmodic stenosis. While a spasmodic stenosis is most

often functional it may be caused by superficial ulcerations of whatever cause by small foreign bodies, and as a reflex secondary to some gastro-intestinal disease.

Lastly, there may be mentioned under imaginary diseases of the ear, nose and throat a condition often referred to as the "Plummer-Vinson syndrome." In 1922 Dr. Vinson,⁸ in a paper entitled "Hysterical Dysphagia" reported sixty-nine cases, fifty-one in males and eighteen in females. He describes the onset of this dysphagia as sudden, often dating from a choking attack brought about by a piece of food lodged high in the throat. An anemia usually developed and frequently a glossitis. Roentgen examination of the esophagus revealed nothing abnormal. Treatment consisted in the passing of a plain esophageal sound, size immaterial, into the stomach guided by a previously swallowed thread and reassurance to the patient that he would be able to swallow forthwith. Iron and arsenic was also administered. Recovery was satisfactory. Concerning the dysphagia Vinson was of the opinion that the treatment was purely suggestive as it entailed no real stretching of the esophagus.

In the beginning of this discussion it was stated that in imaginary diseases of the ear, nose and throat there would be seen three different types of cases. The first in which there is no organic lesion and no functional derangement is well illustrated in the case just mentioned, hysterical dysphagia; also in functional abeyance of nasal respiration. The second in which there is no organic lesion but in which a functional derangement is seen is well illustrated in globus hystericus and functional aphonia. The third in which a patient is suffering from some organic lesion or a history of having recovered from one that has brought on a psychoneurosis is illustrated in the patient who had a radical mastoidectomy.

In conclusion, let me say that many of the imaginary diseases of the ear, nose and throat will require not only the best efforts of the otolaryngologist to solve but the best efforts of the neuropsychiatrist as well.

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BIBLIOGRAPHY

1. Politzer, A.: Diseases of the Ear, p. 685.
2. Politzer, A.: Diseases of the Ear, p. 779.
3. Hunt and Peters: Hysterical Deafness in Soldiers, *Lancet* (Oct. 6) 1917.
4. Stevenson, R.: Hysterical Deafness, *South African Med. J.* 6:9, 1932.
5. Thompson, St. Clair: Disease of the Nose and Throat, p. 104.
6. O'Malley, John F.: War Neuroses of the Throat and Ear, *Lancet* (May 27) 1916.
7. Jackson, Chevalier: Bronchoscopy, Esophagoscopy and Gastroscopy, p. 346.
8. Vinson, P. P.: Hysterical Dysphagia, *Minnesota Med.* 5:107, 1922.

HEREDITARY BLINDNESS IN MISSOURI

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A civilization must be judged by the amount of needless suffering and unhappiness it prevents. Francois Guizot (1787-1874) in his great work on the history of civilization stated that one of the tests of a civilized nation is the exhibition of sympathy in reform toward the poor, the weak and the suffering. Can one read in the press of the Dietrich family of Belmont, Ohio, without wanting something done to prevent the heart-rending effects of hereditary disease? What will future ages say of present times in regard to our "sympathy in reform"?

There is presented for your consideration in this brief discussion one of the preventable causes of blindness. In this country no attempt has been made to check its blight. Writings on heredity and hereditary disease have become very voluminous. More recently the most valuable and accurate studies on the inheritance of many diseases have been made and careful tabulations have been drawn of the afflicted members of a family in each generation. The perusal of these charts impresses the reader with the similarity of the baleful influence of heredity to the fates of Greek tragedy. One ceases to wonder about the latter, however, when it is remembered that this inheritance is dependent upon the most fundamental elements in all living cells; namely, the chromosomes of the nuclei with their determinant genes. Something of the complexity of the action of these basic factors can be realized when it is known that in *Drosophila*, the common fruit fly, at least twelve genes in only four chromosomes fix the color of the iris. In the human there are 47 chromosomes in the male and 48 in the female. Eugenics includes only the promotion of the beneficent genes in the chromosomes. As has been repeatedly stated, eugenics has played a far more important part in the breeding of domestic animals than it ever did in human beings.

Inherited disease is not confined to the early years of life; it may first appear at any age up to that of advanced senility. Unfortunately, the statistical study of hereditary diseases of the eyes can as yet be carried out only among the young in schools for the blind. This is principally because inherited ocular changes first appearing in adult life

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are not recognized as such in the absence of accurate medical records of antecedent relatives. It is sufficient to say that as the science of medicine advances hereditary factors are found to be the basic cause of more and more disturbances in the human economy. Instead of the lengthy explanations by the authorities of the previous generations for the appearance of many baffling disorders there is slowly being substituted malgenetics or malheredity.

Our problem as to statistics is fairly simple among the pupils at the Missouri School for the Blind in St. Louis. There can be little doubt or argument as to those handicapped here from hereditary changes in the eyes. Among the pupils attending this school during the last twelve years, 38 per cent of them have lost their sight from hereditary disease. This amount of hereditary blindness represents a definite and considerable increase over previous periods. In addition, since hereditary disorders in the same individual are prone to appear in multiples, most of these pupils with hereditary blindness are mentally deficient. The presence of the latter condition increases the difficulty of their education to a tremendous degree. Where one Helen Keller with a

good mind succeeds to an amazing extent, legions of others, less handicapped in the special senses, fail utterly because of defective mental equipment. The latter example is just as appropriate even though the blindness and deafness of Helen Keller are not hereditary. The inevitable procedure for the prevention of all hereditary disease must be sterilization.

A previous article under the same title as this one and by the same author was published in March, 1928.¹ At that time 556 pupils attending the Missouri School for the Blind during a period of 23 years were reviewed. Of this number, 159 or 29 per cent were compelled to attend this school because of hereditary blindness. In the estimation of those figures as well as the figures in the present paper there are included under hereditary changes all cases of maldevelopment of the eyes.

The following four tables are based on the ocular findings in 692 pupils in attendance at the Missouri School for the Blind during the last thirty years. Of this number, 217 or 31 per cent were blinded as the result of faulty heredity.

1. Lamb, Harvey D.: Hereditary Blindness in Missouri, J. Missouri M. A. 25:97 (March) 1928.

Table 1. Causes of Hereditary Blindness in 692 School Children

| Cause | Number of | | Total | Percent of 692 |
|--|-----------|-------|-------|----------------|
| | Boys | Girls | | |
| Congenital cataract | 35 | 22 | 57 | 8 |
| Hydrophthalmus | 24 | 10 | 34 | 5 |
| Microphthalmus | 18 | 16 | 34 | 5 |
| Diffuse tapetoretinal degeneration | 17 | 14 | 31 | 4 |
| Prenatal corneal opacity | 6 | 9 | 15 | 2 |
| Retinitis pigmentosa | 8 | 2 | 10 | 1.5 |
| Prenatal uveitis | 3 | 4 | 7 | 1.0 |
| Undifferentiated fovea centralis | 2 | 5 | 7 | 1.0 |
| Aniridia | 3 | 3 | 6 | 1.0 |
| Anophthalmus | 3 | 2 | 5 | .7 |
| Dislocation of lenses | 2 | 2 | 4 | .6 |
| Keratoconus | 2 | 1 | 3 | .5 |
| Coloboma of iris, choroid, optic nerve | 1 | 1 | 2 | .3 |
| Glaucoma | 1 | | 1 | .2 |
| Albino | 1 | | 1 | .2 |
| Total | 126 | 91 | 217 | 31% |
| Percent of 217 | 58% | 42% | 100% | |

Table 2. Amounts of Vision in 217 Children With Hereditary Blindness

| Cause | Total | None | Light Percept. | Light Percept. to 5/200 | 5/200 to 20/200 | 20/200 to 20/80 |
|--|-------|------|----------------|-------------------------|-----------------|-----------------|
| | | | | 5/200 | 20/200 | 20/80 |
| Congenital cataract | 57 | 1 | 3 | 14 | 19 | 20 |
| Hydrophthalmus | 34 | 10 | 7 | 11 | 5 | 1 |
| Microphthalmus | 34 | 14 | 2 | 7 | 9 | 2 |
| Diffuse tapetoretinal degeneration | 31 | 5 | 2 | 12 | 7 | 5 |
| Prenatal corneal opacity | 15 | 4 | 4 | 5 | 1 | 1 |
| Retinitis pigmentosa | 10 | | 2 | 4 | 3 | 1 |
| Prenatal uveitis | 7 | 4 | | 1 | 2 | |
| Undifferentiated fovea centralis | 7 | | | 5 | | 2 |
| Aniridia | 6 | | 1 | | 1 | 4 |
| Anophthalmus | 5 | 5 | | | | |
| Dislocation of lenses | 4 | 1 | | 1 | 1 | 1 |
| Keratoconus | 3 | | | 1 | 2 | |
| Coloboma of iris, choroid, optic nerve | 2 | | | | | 2 |
| Glaucoma | 1 | | | 1 | | |
| Albino | 1 | | | | | 1 |
| Total | 217 | 44 | 21 | 62 | 50 | 40 |
| Percentage | | 20.3 | 9.7 | 28.6 | 23.0 | 18.4 |

Table 3. Percentage of Hereditary Blindness Among New Pupils for Three Year Periods

| | 1905 to 1908 | 1908 to 1911 | 1911 to 1914 | 1914 to 1917 | 1917 to 1920 | 1920 to 1923 | 1923 to 1926 | 1926 to 1929 | 1929 to 1932 | 1932 to 1935 |
|---|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Number of new pupils | 69 | 69 | 67 | 80 | 58 | 91 | 60 | 61 | 49 | 65 |
| Number of hereditary blindness | 12 | 8 | 19 | 25 | 14 | 30 | 25 | 24 | 18 | 23 |
| Per cent of hereditary blindness | 17 | 13 | 28 | 31 | 24 | 33 | 42 | 39 | 37 | 35 |
| Per cent of hereditary blindness for 12 year period | 30 | | | | | 38 | | | | |

Table 4. Amount of Hereditary Blindness From Various Sized Communities

| | Over 100,000 | 100,000 to 50,000 | 50,000 to 100 | 100 and less | Totals |
|--|-----------------|-------------------------|---------------------|--------------------|-----------|
| Total population for each community (1920) | 1,097,307 | 379,155 | 658,739 | 1,268,854 | 3,404,055 |
| Number | 45 | 27 | 97 | 36 | 205 |
| Percentage | 22 | 13 | 47 | 18 | 100 |
| Number per each 100,000 of population | 4 | 7 | 14 | 3 | |

The included four tables speak for themselves. The very important reason for presenting this paper, as shown in table 3, is the considerable increase in the percentage of hereditary blindness during recent years.

A table of blind relatives with similar ocular changes was not included in this paper, as was done in the previous paper, because there was so little additional data in this respect. In all, some 40 of the 217 hereditary blind pupils were reported to have one or more relatives with the same findings. The Missouri Commission for the Blind has collected very valuable data on numerous families over the state having members with hereditary ocular malformations. It is to be hoped that they will publish their findings.

CONCLUSIONS

Hereditary blindness in Missouri is rapidly increasing. During the last six years it was necessary that about 40 per cent or two fifths of the pupils in attendance at the Missouri School for the Blind be educated there because of an inherited maldevelopment of the eyes. There is nothing novel nor radical about the only prevention for hereditary disease, namely, sterilization, for it has now been legalized in twenty-seven states.

826 Metropolitan Building.

XANTHIC LESIONS: REPORT OF FOUR CASES, INCLUDING TWO OF "XANTHOMATOSIS" OF KIDNEY

M. M. Melicow, New York (Journal A. M. A., Sept. 7, 1935), states that the finding of an orange-yellow nodule in a tissue or organ is usually of arresting interest. Orange plaques on eyelids are a common and striking occurrence, and similar skin tuberosities are occasionally seen on the knees, elbows and hands; golden-brown nodules sometimes develop about tendon sheaths and joints; rarely a sinus tract discharges an amazing orange pus and leads to a similarly colored granuloma; the dull yellow of a hypernephroma sometimes displays a distinctive reddish-brown nodule, and a carcinoma of the prostate is discolored very infrequently by a similar process.

RADIATION THERAPY IN THE TREATMENT OF DISEASE

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Undoubtedly it is agreed that radiation therapy has firmly established its position in the treatment of disease; and it is now indisputable that this is the most successful method of treating some diseases. I refer particularly to some skin diseases, including the epitheliomata, cancer of the lip, tongue, cheek, pharynx, larynx, urinary bladder, recurrent breast tumors, some fibroids of the uterus with hemorrhage, malignancies of the bone, both primary and secondary, and carcinomas of the uterine cervix. This of course does not complete the list but does include the major radiation achievements. However, in spite of the admitted good accomplished by radiation, radiologists are constantly on the defensive and radiation is still feared, not only by the laity but also by some physicians. Of course the danger of radiation must not be underrated; but surgery also is dangerous and many more patients have died after operations than from damage from radiation. If a patient is nauseated after anesthesia or medication no particular anxiety is aroused; but if nausea results from radiation he is often told that he received too much radiation and the treatment is interrupted by the attending physician, who apparently loses sight of the primary object of radiation therapy and forgets that reactions are often necessary to cure malignant disease. Rather, the physician should fear that the radiologist will undertreat a malignancy and his patient will die from cancer. However, the present fear and lack of knowledge of radiation has handicapped radiologists to such an extent that

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the major radiological societies have passed resolutions regarding roentgen ray reactions. The following resolution, passed by the American Radiological Society in 1934, is an example:

WHEREAS, It has been proved that radium or roentgen rays, when used properly and in sufficient quantity, is efficient in the treatment of cancer in certain locations; and

WHEREAS, There is a general fear in the public mind from roentgen rays or radium burns which, because of this fear, prevents competent radiologists from using sufficient radium or roentgen ray to produce the results; be it

Resolved, That we, as radiologists, recognize that in the treatment of malignant disease it is often necessary to carry the treatment on to the extent of producing a violent reaction in the surrounding tissues, which may cause the skin to peel and blisters to form, in order to give sufficient treatment to overcome the malignant disease; we believe, therefore, that it is justifiable to produce a second degree radiodermatitis when necessary.

Of course severe reactions are not necessary in all radiosensitive conditions, including some malignancies and in these severe reactions are to be condemned; but in known malignancies, the kind which end only in death, radiation must be used courageously and a lethal dose delivered to the cancer if possible, admitting the dangers of radiation but also realizing the greater danger of the cancer if it is not devitalized.

Obviously it is impossible to cover the entire use of radiation therapy in twenty minutes, but let us look at one field, i. e., cancer of the uterine cervix, to see what sort of procedures seem to guarantee the greatest measure of success.

Most physicians agree that carcinomas of the cervix are best managed by radiation therapy. The most generally accepted exceptions to this are the relatively rare first stage growths which respond about equally well either to radiation or surgery and in the relatively rare and relatively radioresistant cases of adenocarcinoma. It is generally accepted that carcinomas of the fundus are best treated by hysterectomy.

The first step in the treatment of cervical carcinoma is of course the establishment of a definite diagnosis and to determine the extent of the local disease and the general physical condition. It is important particularly to determine if there are any metastases and if the patient is in condition for intra-uterine radiation. Biopsy is not a hazardous procedure and is certainly the most positive means of diagnosis, provided a generous enough piece of tissue is removed to insure that a part of the involved area is obtained. A negative biopsy on a small or

insufficient piece of tissue may lead to the serious error of believing that you are dealing with a benign condition when the lesion is actually malignant.

After the diagnosis is made and before the type of treatment is chosen the extent or stage of the growth should be ascertained. Seemingly, the most practical classification is the one used by Henry Schmitz of Chicago which is based entirely on the local findings. Generally, carcinomas of the cervix are divided into primary and secondary or recurrent, but the primary group, with which we are principally concerned, Dr. Schmitz has classified into four principal clinical groups, as follows:

Group 1. The definitely localized lesion, usually not more than 1 cm. in diameter.

Group 2. Doubtfully localized growth with some infiltration or edema of the paracervical connective tissue and beginning decreased mobility of the uterus, particularly downward, when pulled gently with a tenaculum.

Group 3. The invading growth with involvement of the parametrium, regional nodes and definitely decreased mobility.

Group 4. The fixed growth (frozen pelvis), often associated with extension into the bladder, rectum and widespread metastasis.

A further valuable prognostic factor is presented by the microscopic classification of Broder who grades these malignancies into four classes. Grade I is the least malignant and group IV is the most malignant and most rapidly invasive. The degree of radiosensitivity varies with the cell type, grade IV being highly radiosensitive.

These classifications have an important connection with not only the prognosis but the treatment. For instance, it has been found at the New York Memorial Hospital in the grade IV cases that only 9½ per cent lived five years when treated by hysterectomy alone while 66 per cent of those treated by radiation were well five years later, thus emphasizing the counterbalancing of the extreme malignancy of this type by its radiosensitivity. However, there is still too great a tendency on the part of some men to treat all uterine malignancies alike, disregarding the classifications we have mentioned; with this attitude practically all grade IV types are condemned to die. But if the classifications are followed grade IV cases should all be treated by radiation and practically all of groups III and IV are eliminated from the surgical group. And it is worth recalling that even the advanced

cases, groups III and IV, have about a 22 or 23 per cent chance to be alive and well at the end of five years; even if they are not fortunate enough to be in this small percentage we can almost positively assure the patient that we can stop the discharge, hemorrhage and the offensive odor, thereby adding materially to her comfort. Thus the factors which determine the prognosis in cervical carcinoma in the order of their importance are (1) early diagnosis; the life of the patient may depend on this; that is, the extent of the lesion when treatment is begun is easily the most important of all; (2) microscopic characteristics and (3) choice of therapy.

Now, granting that a diagnosis of carcinoma of the cervix has been made, it must be determined whether radium can be used in the uterus. There are a few contraindications; namely, (1) general extension of the cancer beyond the pelvis; (2) fistula formation with very advanced local disease and concrete-like fixation of the uterus; (3) extensive local and pelvic infection and (4) advanced cachexia and uremia.

In these cases palliative roentgen ray can often be given; it certainly is not so hazardous and frequently cleans up malignant nodules and infection sufficiently to permit the use of radium in the uterus or vagina.

Often in the treatment of cancer of the cervix the physician advises only the use of radium without roentgen ray in the advanced cases. This is an unwitting fault as the ability of radium to destroy cancer probably does not extend beyond 3 to 4 centimeters, so it is apparent in stage III or IV growths that intra-uterine radium application cannot control the growth. Therefore additional radiation must be supplied from another source. This is ordinarily accomplished by the application of high voltage roentgen ray. It is also apparent that in most instances the high voltage roentgen ray therapy should precede the radium implantation as extra-uterine extension is the most dangerous to the patient and the outside of the tumor is usually the rapidly growing part. We have also been shown by Regaud of Paris that roentgen rays are less effective after radium, so he contends that the correct combination is to use roentgen ray therapy first, followed immediately or at most after only a short interval by radium.

One of the most important points to be observed is in a case of cervical infection which is frequently associated with carcinoma of the cervix. The infection usually advances as the cancer progresses and if radium is ap-

plied in the presence of this a local infection may progress to a salpingitis, peritonitis or even a septicemia. In the early stages these infections can usually be controlled by copious antiseptic douching although a few of the pyogenic types are often quite persistent and may require autogenous vaccines, local cleansing, etc.

In closing, let me call to your attention the palliative effect of radiation on bone metastasis. The two cases of which I will show you the radiographs are not claimed as cures; but they have been made comfortable and temporarily are no longer helpless, which at least is worth while. And I would like to stress the importance of adopting a more optimistic attitude toward some cancer patients, as, contrary to current opinion, a large number can be cured if you are alert to the importance of early diagnosis and adequate radiation.

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HYDROCEPHALUS (DURA- URETERAL DRAINAGE)

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The distressing picture presented by the hydrocephalic patient and the fact that spontaneous cures occasionally occur have stimulated workers in this field from the time of Hippocrates. Hydrocephalus is looked upon as a progressive and usually fatal disease and the failure of numerous methods of treatment, with the exception of a few brilliant results, makes it appear to be almost an insuperable problem.

Two types of hydrocephalus are described, the external type and the internal type. The external type is that in which the fluid collects between the surface of the brain and the dura, or between the dura and the skull. This type is very rare and is seldom described in surgical textbooks. Internal hydrocephalus is characterized by an excessive accumulation of fluid within the cerebral ventricular system. The fluid accumulates in the lateral ventricles, its chief source being the choroid plexus. From the lateral ventricles it passes into the third ventricle through the foramina of Monro, from the third ventricle through the aqueduct of Sylvius into the fourth ventricle, and then into the cisterns through the foramina of Luschka and Magendie. From the cisterns it diffuses into

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the remaining subarachnoid spaces of the brain and cord, and in this region it is either absorbed or passes into the blood stream.

The internal type may develop when production is excessive, absorption defective or delayed, or when there is a block in the drainage system between the production centers and the areas of the subarachnoid space where absorption occurs. When the fluid is blocked in the ventricles it is described as the obstructive or noncommunicating type; and when it has free passage into the subarachnoid space of the cord it is known as the communicating type. It is this latter type that comprises the large majority of the cases occurring in children. The blocking of the circulating path of the fluid which occurs in the communications between the ventricles and the subarachnoid space is caused by tumors, bands or adhesions, most of the latter resulting from meningitis.

Numerous methods have been suggested and devised for relief of this condition, but not one has been universally accepted; even the most recent ones can hardly be said to be extremely satisfactory. It is well known that in children hydrocephalus may become arrested in its development; if so the sutures become ossified and the head ceases to grow larger; however, there are no definite signs or symptoms to differentiate these cases from the progressive ones.

Hippocrates was given credit for puncturing the ventricles in order to relieve pressure. Similar methods of tapping the ventricles or the spine for relief of the pressure are still occasionally advocated, hoping that by keeping the intracranial pressure low spontaneous cure will occur by an opening of the blocked channels, and a normal interchange of fluids will take place. Repeated tapings are necessary, for it is to be remembered that the total amount of fluid is renewed every six to eight hours and if an excess is produced the pressure on the sides of the ventricles disturbs the action of the brain.

Whytt, in 1768, described this condition as dropsy in the brain and suggested the same treatment for its relief as for dropsy in other parts of the body; viz., purges and diuretics. Diuretics were again suggested in 1924 by Marriott. In observations on edema Marriott noted that when the surface tension of the blood was low fluids had a tendency to pass out of the blood stream into the serous cavities and subcutaneous spaces. When the surface tension of the blood was high, fluids would pass back from the serous cavities into the blood stream. Marriott used a purin diuretic to raise the surface ten-

sion of the blood in hydrocephalics so that the fluid would pass from the subarachnoid space back into the blood stream. He reported good results in a few cases. These cases were carefully controlled and he noted that when the diuretic was stopped the head would continue to grow larger and the growth would stop when the diuretic was administered. Other observers who experimented with this treatment did not get good results.

Postural dehydration, keeping the patient in a perpendicular position and at the same time limiting the intake of fluids, is recommended by Penfield who reports some permanent cures in mild cases.

The choroid plexus has been attacked by surgery, electrocoagulation and deep roentgen ray therapy with the idea of lessening the main source of secretion of the fluid. The surgical procedure is very difficult and the mortality rate very high. Even when life is prolonged the end results are disappointing, for the manipulation involved in emptying the ventricles and retracting the walls to expose the plexus usually lead to extensive cortical damage.

Putman has reported a few cases in which he destroyed the choroid plexus by electrocoagulation working through a ventriculoscope. In this way emptying of the fluid was avoided and no damage to the walls of the ventricles resulted. Very few good reports come from roentgen ray therapy over the choroid plexus.

When it was noted that the pressure in the cerebrospinal spaces was slightly in excess of venous pressure some workers attempted to divert the fluid into the venous system. Sections of veins were used as channels between the ventricle and the longitudinal sinus. These sections contained normal vein valves opening only in the direction of the sinus. Very few cures resulted from this type of operative procedure.

In order to diminish the blood supply to the choroid plexus it was suggested that the common carotid arteries be ligated. This was tried experimentally and later attempted on human cases but the results were very poor.

The other method of attack, and the one for which most operative procedures have been devised, is to divert the fluid from the cerebral ventricular system into some part of the body where the fluid will be absorbed. Attempts were made to sidetrack the fluid under the scalp; into the tissues on the dorsum of the neck; into the tissues adjacent to the spine; into the pleural cavity, and also

into the peritoneal cavity. All types of drainage material were used, catgut, silk threads, gold and silver and glass tubes, sections of the patient's veins, veins taken from the parents, hardened calves' arteries, tubes of fascia and numerous others. Good results were seldom obtained due to the fact that the drainage system would sooner or later close. The channels would become blocked, the ends sealed over, or the tubes would not be tolerated by the system.

Heile was one of the consistent workers with this type of continuous drainage. Like other workers he used the omentum taken through a hole in the peritoneal cavity and sutured it to a slit in the dura after having done a laminectomy. He also used a loop of intestine, taking it through a posterior abdominal opening and suturing it to a dural opening, thinking that the serous coat of the intestine would serve as a drain. In 1925 while working on abdominal drainage he first suggested and proposed the use of the ureter for continuous drainage of the spinal fluid into the bladder in the communicating types of hydrocephalus. In 1928 he reported three cases in which he removed the kidney and then anastomosed the upper expanded portion of the ureter to an opening in the lumbar dura. One of these cases was still living and doing well at the end of the third year.

Other European investigators reported occasional good results. There is very little in the medical literature of America concerning this type of drainage, and only six cases have been reported to date. Two of these operations were performed by Christopher in 1929. Both were on infants; he modified Heile's technic in that he pulled the ureter subcutaneously to the dura instead of through a tunnel in the lumbar muscles. One of his cases died during the operation. The other died seven months later but for a time showed temporary improvement.

Davidoff, in 1932, reported a case treated in this manner. The patient lived one week but he was able to demonstrate postmortem that the anastomosis between the dura and the ureter was patent and that a channel persisted from the subarachnoid space into the bladder. Lehman, in 1934, reported three cases, one an adult in which the operation relieved a hydrocephalic condition temporarily; the other two cases were infants; one lived nineteen days, the other twenty-two days. One died of meningitis but Lehman was able to demonstrate that the infection did not ascend from the bladder but probably developed during the operative procedure. The other

died of what he thought was dehydration. He was able to demonstrate on one of these cases that the anastomosis had healed, the opening was still patent and there was communication between the subarachnoid space and the bladder.

This operative procedure appears to be theoretically correct. Nature's own drainage tube, the ureter, is used. The blood supply of the ureter remains intact, healing takes place between the ureter and the dura preserving the patency of the anastomosis, and it is hoped that peristalsis of the ureter is still retained. If such is the case, external drainage will be a success as the difficulty encountered in other types of continuous drainage operations was the closing of the artificial channels by collapsing or by the sealing of their ends. The necessity of sacrificing the normal kidney should not be considered because if the operation is successful the patient with one kidney is better than the hydrocephalic with two good kidneys; and it has been shown conclusively that an individual can go through life with a single hypertrophied kidney. Also, ascending infection need not be considered as the majority of urologists believe this to be rare unless there is some block in the lower urinary channel. The problem of continuous loss of cerebrospinal fluid will be unsettled until reports of more cases give us additional information.

CASE REPORTS

Case 1. Female. Normal delivery December 17, 1934. Both parents normal and healthy. They have eight other normal children.

This patient had a lumbar spina bifida. On the second day the sac began to leak and operation was advised. The sac was approximately two inches in diameter and about one inch high with a very thin covering. At operation it was found to be the meningocele type of spina bifida. The greater portion of the sac was removed and the nerve structures dropped back into the neural canal; the dura was sutured and the bony defect closed by inverting flaps of lumbodorsal fascia from either side. The skin was closed transversely by a sliding flap undercutting up as high as the scapulae. Recovery was uneventful. Patient was discharged from the hospital ten days later. Bladder and anus were normal but there was a weakness in one leg. It was noted at this time that the head was increasing in size.

On February 10, 1935, patient reentered the hospital. At that time the head measurement was 18 inches in contrast to the measurement of 14½ inches at birth. Growth had been at the rate of approximately ½ inch per week. The baby had all the typical signs of hydrocephalus. On the day of reentry the left ventricle was injected with indigo carmine and was recovered a few minutes later by tapping the lumbar dura. This conclusively proved that I was dealing with the communicating type of internal hydrocephalus. There was a very severe reaction to the dye, the patient running a temperature of 104-105° for three or four days. Be-

cause of this dye was not used to investigate the function and presence of the kidneys.

February 17, 1935, ureterodural anastomosis was performed. A vertical incision was made in the lumbar region, the dura exposed and then opened on its right lateral side. An oblique incision was then made in the right lumbar region and the right kidney was delivered. After ligating its vascular pedicle a small amount of hilus fat was cleared away and the pelvis of the kidney was cut across where it entered the kidney substance leaving the upper end of the ureter with the pelvis expansion. The ureter was dissected free for a few inches toward the bladder. An oblique tunnel was then made with a blunt forceps through the lumbar muscles opposite the opening in the dura. The ureter was then pulled through this muscular tunnel so that it laid loosely aside of the dural opening. An end-to-side anastomosis between the ureter and the dura was performed, using interrupted sutures throughout. Both wounds were closed without drainage. The baby had only a slight reaction, the highest temperature being 101° on the first postoperative day. This gradually subsided and after the fourth postoperative day the temperature remained normal. There were no gastro-intestinal symptoms and normal feeding was given the following day. On the second postoperative day it was noted that the fontanels were soft and depressed in contrast to their tight, bulging appearance preoperatively. The circumference had decreased $\frac{1}{4}$ inch. The urine examination showed a few red and a few white cells. The baby was bright and did nicely until the forty-second day. At that time she became sluggish and it was noted that the fontanels were tense and bulging slightly. The temperature was normal. A ventricular puncture was done and several times during the procedure it was noted that the needle would become blocked; on aspiration a small plug of mucoid material would be recovered. Fluid examination: Cloudy, rather light brown, pellicle forms on standing. Cell count 2500. Smear and culture negative for bacteria. Smear showed a predominance of polymorphonuclear leukocytes. Urea estimation at this time to determine the possibility of urine contamination gave a urea estimate too low to read. Sp. gr. 1015. Occult blood negative with the guaiac test. Weakly positive by benzidine reaction. Globulin (Pandy) strongly positive. Estimation of albumin by Esbach method gave a reading of 12 gms. The urine at this time contained numerous pus cells. Following this the baby appeared brighter and the temperature still remained normal. The bladder was fully distended with neo-iopax, and roentgen rays revealed the opaque solution in the bladder and no ascension into the ureters.

After fifteen days the fontanels again became tense. At this time the urine did not contain any pus cells. A ventricular puncture was again made, the ventricles emptied and air was injected. During this procedure a catheter was inserted into the bladder the free end was placed under water and a good quantity of air bubbled through. Examination of the ventricular fluid: Light brown. Benzidine reaction for occult blood slightly positive. Estimation of proteins (tyrosine method) showed a total proteins 1.464 gms. per 100 cc. Fractional albumin 1.049 gms. Globulin 0.415. N. P. N. 23.4 mgs. per 100 cc. Total cell count 250. Smear and culture negative for bacteria. Cell count showed a predominance of polymorphonuclear leukocytes. Sugar 45 mgs. per 100 cc. Urea too low to estimate. The temperature was always normal. Six days after this the fontanels again became tense and it was thought that the block in drainage was due to mucous blocking the ureter, as it had blocked the

needle during aspiration. The pathway was again cleared by injection of air. Fluid examination: Slightly cloudy, negative for occult blood. Cell count 60. Total proteins 1.0 gms. per 100 cc. Albumin 0.738. Globulin 0.262. N. P. N. 24.9 mgs. per 100 cc. Sugar 60 mgs. per 100 cc. Since that time the course has been uneventful.

Case 2. Female, aged 26 months. On September 17, 1933, a lumbar laminectomy was performed for drainage of purulent meningitis. Recovery followed a prolonged, stormy course. In July, 1934, patient had convulsions. Entered hospital April 23, 1935, because of blindness and inability to walk. Patient was well developed and well nourished and sat up with assistance. Struck head with hand quite often. Reflexes were normal. Fontanels were closed but head appeared to be larger than normal. Was totally blind. Radiographs of the skull in different positions, following removal of clear spinal fluid with replacement of air in lumbar dura, showed enormously dilated lateral ventricles filled with fluid and air. The right ventricle appeared somewhat larger than the left. There was no air beneath the arachnoid. Diagnosis: Communicating type of internal hydrocephalus.

Ureterodural anastomosis was performed on April 26. The right kidney was removed. No reaction followed the operation. The urine was blood tinged for two days; this was thought to be due to oozing in the dural sac resulting from liberation of adhesions from previous operation. The child is doing nicely and does not appear to be as irritable as before the operation.

CONCLUSION

Two cases are added to the scant literature relative to dura-ureteral drainage for the communicating type of internal hydrocephalus. An opinion concerning this procedure at this time would be premature.

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BIBLIOGRAPHY

- Christopher, F.: Ureterodural Anastomosis, *Surg. Clin. N. Amer.* **9**:473, 1929.
Davidoff, L. M.: Treatment of Hydrocephalus, *Arch. Surg.* **18**:1737, 1929.
Davidoff, L. M., and Bancroft, F. W.: Ureterodural Anastomosis for Treatment of Hydrocephalus, *Arch. Surg.* **25**:550, 1932.
Heile, B.: Ueber Neue Operative Wege zur Druckentlastung bei Angeborenen Hydrocephalus (Ureter-duraanastomose), *Zentralbl. f. Chir.* **52**:2229, 1925.
Heile, B.: Zur Behandlung des Hydrocephalus mit Ureteroduraanastomose, *Zentralbl. f. Chir.* **54**:1859, 1927.
Lehman, E. P.: Uretero-Arachnoid Anastomosis, *Ann. Surg.* **100**:887, 1934.
Marriott, W. McKim: The Use of Theobromin Sodiosalicylate in the Treatment of Hydrocephalus, *Am. J. Dis. Child.* **28**:479, 1924.
Penfield, Wilder: Hydrocephalus and Spina Bifida, *Surg. Gynec. & Obst.* **60**:363, 1935.
Putman, T. J.: Treatment of Hydrocephalus by Endoscopic Coagulation of the Choroid Plexus, *New England J. Med.* **210**:1373, 1934.

USE OF HEAT IN DISEASES OF NERVOUS SYSTEM

Clarence A. Patten, Philadelphia (*Journal A. M. A.*, Sept. 7, 1935), points out that heat is frequently used in the treatment of both organic and functional nervous disease and provides a very effective therapeutic agent. It is used in many ways both locally and generally. Heat is generally used systemically in the treatment of the psychoses and is usually of considerable advantage if used over a long period of time.

THE CHANGING PRACTICES IN INFANT FEEDING

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In recent years the manufacture of commercial foods for infants has become a highly specialized activity. Some of these have been advertised directly to the public and to the extent that they have replaced sweetened condensed milk they have produced a great improvement in such feeding. The radio has been the means of advertising directly to the public.

The other method of reaching the public has been less direct, but more effective as physicians are constantly supplied with little sample packages which we introduce to our patients and direct that the parents get larger quantities at the drug store. New varieties appear from time to time. They can be prepared easily, especially those where a measured quantity of milk preparation needs only to be added to water. As to the reception of these foods by the medical profession the abundance of samples supplied gives evidence; otherwise the advertising and distributing costs would soon prove overwhelming for the manufacturers.

There is an attitude which I have found among physicians and among young mothers who have been advised by their friends that breast feeding is old-fashioned and no longer superior to artificial food in food factors, assimilation and convenience of administration.

On the other hand, emphasis has recently been placed upon the fact of lessened incidence of infection in breast-fed infants which was found by the survey of many thousand cases. Grulee¹ and co-workers reported last year the results of years of work which prove the influence of breast or of artificial feeding upon the morbidity and the mortality in 20,000 infants. The advantages are greatly increased with the breast-fed babies because of greater immunity to infections, and the reduction in the general mortality to one tenth that of the artificially fed child. Other writers² have recently reported the comparison of the physical and mental development. In general, infants if nursed four to nine months are superior to those not given the breast.

The first two weeks of life decide the question as to whether the infant is to have a reasonable chance to be successfully nursed. Careful methods of measuring the intake of breast milk in the obstetrical nursery show that most infants can nurse satisfactorily if artificial food be not pushed during the newly born period.³ From the observation of most newborn nurs-

eries it is evident however that the bottle is taking the place of nursing to an increasingly greater extent.

The care of the premature infant has come into an era when even more expertness is required because of the physician's desire to obtain the lowest possible rate of mortality by making use of the recent scientific improvements. The nursery or home can be provided with conditioned air so that the premature room will be kept heated to an optimal degree and the air supplied with the proper degree of humidity.* The first detailed experience that has been published, coming from Blackfan⁴ at Harvard, advises that the humidity of the premature nursery is most advantageous at 65 degrees, the room temperature at about 88 degrees, somewhere between 75 and 100, depending upon the case. No incubator is necessary if the infant's room be kept heated and moistened at the ideal degree. Babies regain their birth weight sooner, lose less weight and are less apt to get pneumonia. This favors the best digestion and utilization of the food. Breast milk can be provided by other methods than direct nursing for the baby too drowsy to nurse. Powdered protein milk (sour) and acidified evaporated milk have been used by many pediatricians. Both of these may be added to drawn breast milk. Guarding against overfeeding and aspiration of food is essential, for diarrhea and pneumonia are caused, respectively, and these are often fatal.

The handling of the problem of wet nursing has been changed and improved. The wet nurse need no longer be kept in the sick infant's home. The breast milk may be obtained by manual expression from one or more women, even without going through the delay of a Wassermann test, if the milk be brought to the boiling point. Breast milk may be collected when it is not needed, put into containers and kept for weeks in the electric refrigerator. It can be preserved also by the method known as fractional sterilization. Formerly the pay for wet nurses was exorbitant and not within the reach of the needy case usually. An adequate pay for the donor's milk is 10 cents per ounce, or a flat fee of something like one dollar per day.

The fact that most infants from 3 weeks to 3 months of age undergo a period of increased nervous tone or imbalance explains one of the common problems that has been incorrectly considered as a feeding disturbance. This condition occurs just as commonly in well nourished breast babies as in bottle infants. So-called colic is not a digestive disturbance;

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* The premature nursery in the Children's Department of the University of Kansas Hospital, Kansas City, Kansas, is equipped with air-conditioning apparatus.

it usually calls for no change in the diet if the amounts are adequate. Even when skim milk and dilute watery mixtures were fed to colicky infants there was no improvement in the colic. It is well to give a small dose of sedative, such as atropine, codeine or luminal every four hours if necessary.

The serious consideration of artificial feeding dates back to the system of percentage formulae in the attempt to imitate the composition of breast milk. At the present time there has been an attempt to duplicate the percentage composition of breast milk in two of the proprietary synthetic milk powders on the market. Cow's milk feeding became simple and was revolutionized when buttermilk was introduced in Europe about thirty years ago. At first naturally soured churned buttermilk was used; later the cultured buttermilk had a great vogue.

You are all familiar with the methods of simplifying milk formulae brought out a few years ago by Marriott, of Washington University. He addressed this society in 1928 on the subjects of the debuffering of the calcium salts in cow's milk, and the practical use of unsweetened evaporated milk. Davison,⁵ of Duke University, has recently advocated the widespread feeding of acidified evaporated milk for the prevention of milk-borne diseases. Inasmuch as lay audiences are being constantly advised over the radio as to the merits of such canned milk for infant feeding and as well-known leaders in the medical profession brought out this method, it is important that the physician in practice should be fully informed and familiar with the technic.

For the great number of infants living in the country where cow's milk is abundant and inexpensive fresh milk should be generally used. The family that keeps a cow can have naturally soured buttermilk or can safely use boiled whole milk. Lactic acid added to boiled milk will act as a preservative if ice is not available.

When large amounts of cow's milk are taken the child becomes constipated. The substitution of brown sugar, some of the malt sugars, or molasses especially, for the white sugar or corn syrup will keep the bowels regular.

Among the many changes in the dietary for young infants is the use of larger amounts of orange juice so that its antiscorbutic effect is begun in the earliest months of life. Orange is well tolerated and has a good effect if several ounces daily are fed in overcoming excessively acid urine and diaper burns.

Cereals and vegetables are fed to infants much earlier in recent years. Thick cereal agrees well with the child even as young as a few weeks of age, as has been shown in the diet used for pyloric stenosis. The especial

manufacture of cereal for infants is not usually necessary, but some of the commercial preparations have the merit of convenience in that they do not require cooking and they do contain a higher vitamin and mineral percentage. Canned vegetables for infants have attained a great vogue; they are somewhat more expensive but they are reliable, though probably no more so than other good brands on the market. One cannot help feeling that freshly cooked food is better than an aged canned product.

I believe the child will thrive better and have fewer spells of anorexia if a planned variety is used in the dietary. The nuisance of weaning from the bottle is no longer necessary, since even an infant of one or two months may be taught to drink from a spoon, and thereafter from a cup.

There are no doubt many safe and satisfactory types of infant foods. Most artificially fed babies are still given sweet milk mixtures, and in private practice the souring of the milk formula is not so common in the last five years. The latest addition to milk is that of providing an increased content of vitamin D. Cow's milk, whether fresh, dried or evaporated is being irradiated directly with the ultraviolet ray, or irradiated yeast is fed to the cows.

SUMMARY

Infant feeding is still undergoing evolution. The knowledge of this branch of dietetics has grown rapidly; it has made possible a great advance in the welfare of infants. While it is not desirable to overfeed these young individuals because of the possibility of producing intertrigo, eczema and obesity one is justified in methods that make possible the optimal growth in height, weight, muscle tone and gastro-intestinal function. It is the general impression of pediatricians of long experience that one rarely sees nowadays the marantic child so common a decade or more ago. There is little doubt that along with the decrease in deaths from milk borne diseases and intestinal disorders, there has occurred a wonderful change in the average welfare of the modern infant as regards growth and nutrition. This is due to the amount and variety of helpful food offered babies. Certified milk, evaporated milk, powdered whole milk, all enriched in vitamin D by radiation should provide the highest types of artificial foods and should automatically do away with rickets and help to prevent nutritional disturbances.

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BIBLIOGRAPHY

1. Grulee, Clifford G.; Heyworth, N. Sanford, and Herron, Paul: *J. A. M. A.* **103**:735 (Sept. 8) 1934.
2. Hoefler, C., and Hardy, M. C.: *J. A. M. A.* **92**:615, 1929.

3. Neff, Frank C., and Dwyer, H. L.: *J. A. M. A.* **99**:463 (August) 1932.
4. Blackfan, K. D.: *Am. J. Dis. Child.* **46**:1174 (November) 1933.
5. Davison, W. C.: *Am. J. Dis. Child.* **49**:72 (January) 1935.

PHYSICAL FACTORS IN DEVELOPMENT OF THE PSYCHOSES

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Volumes have been written and volumes have been spoken about the mental factors in development of the psychoses but the physical factors have been somewhat neglected. The psychoses have been referred to as mental diseases. This is a misnomer. It is true there is disordered mental activity, as manifested by disordered conduct and conversation. But, this disordered conduct and conversation is not due to disease of the mind; it is the result of disordered function of the brain through which the mind manifests itself to other conscious personalities. Disordered brain function may be the result of brain disease with pathological change; or the result of functional disturbance without pathological change.

A psychosis means a change from what was previously the individual's normal mind. Just what is a normal mind? We have no absolutely normal minds to use as a standard by which we can measure other minds. To every individual is given a certain type of mind. The type of mind given to each individual is the normal mind of that individual, it matters not what that type of mind may be. However, we have average minds and minds above the average and minds below the average; some minds are both above and below the average. They may be above the average in intelligence and below the average in common sense; below the average in emotional control, the emotions being out of harmony with the intelligence; below the average in adjusting the individual to the practical side of life; below the average in persistence and perseverance in the normal activities of life.

We assume that all human beings have minds. However, there are many human beings of such low grade mental development that we classify them as aments, meaning "without mind." They have no intelligence or reason; they live a very low animal or vegetative existence. Because of congenital or acquired brain defect their minds have never been able to develop. These individuals have not a psychosis. They have a type of mind which is normal for them and there

has been no departure from their normal type of mind.

This idea of a normal mind varies somewhat from the popular conception of what constitutes a normal mind. The popular conception is that a normal mind is one which enables the individual to make normal adjustments, to meet the varying problems of life. But very few minds are so constituted as to enable any individual to meet successfully all of life's problems. There are many deviations from the average mind in all minds, some major and some minor. The reason for this is that no brain is perfect in its construction and function. A brain, to be perfect in function, must be perfect in construction and all parts perfect in association; but all brains are in some respects congenitally defective; defective in construction of the various areas or in association of the various areas; or there are defects in nutrition, defective metabolism or defective assimilation of energy-producing compounds. Therefore, we can conclude that there are no perfect brains to serve perfect minds.

If we assume that the type of mind of an individual is that individual's normal mind and that minds do become abnormal, when does this occur?

A mind becomes abnormal when there is a departure from the individual's normal in thinking, feeling and acting. We can only distinguish between the individual's normal and abnormal mind by his conversation and his conduct; and we can only distinguish between sanity and insanity by conversation and conduct. In other words, we must judge the sanity and insanity of an individual by what he says and what he does. If he talks and acts sanely we must say he is sane; on the other hand, if he talks and acts in an insane manner we must say he is insane if his conduct and conversation deviate from his previous normal.

We classify and give names to the various psychoses because the abnormal conduct and conversation vary in different psychoses; but there is also a similarity in the conduct and conversation of all individuals having a psychosis and they have all departed from their normal in conduct and conversation.

Now, what is the fundamental cause of this departure? Is it because the mind of the individual has changed? What is mind? Mr. Webster, in his famous book of definitions, tells us "Mind is the intellectual or rational faculty in man; the understanding or intellect; the soul." He tells us the soul is the mind, the spiritual, rational part in man, reason or intellect. Analyzing his definition, and I know of none better, the mind is the soul and the soul

is the mind. I contend, therefore, that the mind is not subject to disease or change, but that the brain, through which the mind manifests itself, does undergo change in certain individuals to such a degree that it is impossible for a perfectly good mind to manifest itself in a normal manner; and if this same mind could be furnished with a normally functioning brain there would be no evidence of abnormal mental activity.

If a fine pianist attempts to give expression through a piano badly out of tune the results would be similar to a good mind attempting to express itself through a disordered brain. The ability of the pianist would not be impaired no more than would the ability of the mind, but the results in both instances would be abnormal.

The brain is a very complex organ divided into various areas, with many and varied functions but all normally associated together in such a manner that there is coordinate activity.

It is through the sense organs, sensory nerves and sensory areas of the brain, that the mind perceives that which stimulates these structures into activity. The sensations are the most elementary of psychic processes. Sensations, after repetition, form memory pictures within the brain and perceptions arise. When we are able to coordinate our perceptions into homogenous groups of sensations together with all their connections we have what is called apperception.

If the sense organs, nerves and sensory areas in the brain continue normal in structure and function sensation, perception and apperception are not affected. If these structures are disturbed in function by disease or toxic substances or by trauma we have loss or perversion of these psychic processes. If for any reason there is a distorted function of the sensory areas within the brain we may have hallucinations or illusions, which are oftentimes symptoms of a psychosis. These hallucinations and illusions may be within the realm of vision, hearing, taste, smell, or tactile sense, the psychotic patient having imaginary sensations or misinterpreting sensations.

All parts of the brain are to some degree concerned in the formation of concepts and ideas, but that part of the brain most chiefly concerned is supposed to be the frontal lobes. Pathological change or disturbance of function results in a distortion of ideas, called delusions, which are manifested by conduct and conversation abnormal for the individual. There is, therefore, a departure from the individual's normal conduct and conversation such as we observe in what we term "a psychosis."

Analyzing the fundamental causes of the various individual psychoses we find that they all

have a physical basis for their development. The psychoses are not directly hereditary, but there is in various families a predisposition to mental disorders; and the family predisposition is a most important determinant in their development. This inherited predisposition is germinal and physical; a transference from parent to offspring of brain anomalies. The predisposition, it is true, will not cause alone a psychosis; there must be in addition an exciting cause. The predisposition is the powder and the exciting cause the match; neither is operative alone, but combined they cause the mental explosion which we call a psychosis.

Without a family predisposition the germ may be so damaged in its development by debilitating diseases of the mother or by poisons, such as alcohol and infection, that the descendants are predisposed to mental disorders. The embryo too may be damaged by disease of the mother, lack of room in the pelvis, by traumatic occurrences and by intra-uterine disease, so that it is born an idiot or a psychopath. The predisposition of whatsoever nature is due to brain anomalies and malformations which prevent the development of a stable mind. We designate as burdened those who have among their blood relations (parents, grand-parents, children, brothers, sisters, uncles and aunts) members who suffer or have suffered from mental and nervous disorders, alcoholism, apoplexy, abnormal character, or who have committed suicide. According to Blender 67 per cent of the healthy and 78 per cent of the insane who are admitted in institutions are burdened. So, we see there is not very much difference in the percentage of healthy and insane who are so burdened.

Apoplexies and nervous diseases are observed less frequently in families of the insane than in those who are healthy. Entirely too much attention is paid to hereditary burdens. Many mental diseases have no hereditary significance, such as acquired idiocy and paresis.

The exciting causes which cause brain disorders and disturbance of brain function resulting in mental disorders are many and various. Diseases that affect the brain in childhood, such as meningitis, poliomyelitis, cause oligophrenias, psychopathies and epilepsies. Scleroses, tumors and similar brain diseases frequently result in psychoses. Infectious diseases may change the anatomical consistency of the brain. Most notable of those which cause pathological change are cerebral lues, encephalitis and rabies. Or they may affect the brain function through poisoning, as in all types of fevers, and thus produce psychoses; or may indirectly disturb brain nutrition, as in syphilitic

disease of the blood vessels. Dysfunction of the endocrine glands, especially the thyroid and pituitary glands may so seriously disturb brain function as to cause psychoses.

Of the external poisons causing brain disease or an upset of brain function which may result in a psychosis are alcohol, ether, opium, cocaine, lead, carbon monoxide, pellagra, ergotine, chloral, bromides and barbitol preparations. Cardio-renal diseases and arteriosclerosis are also causes of psychoses through brain damage and impairment of brain function. Brain exhaustion may be so severe as to lay the foundation for a psychosis.

All the psychoses resulting from syphilitic infection are the result of definite pathological changes within the brain. In paresis we have a meningo-encephalitis. We have psychoses resulting from intracranial gumma; also intracranial luetic endarteritis.

The psychoses of epidemic encephalitis and other forms of encephalitis are the result of disordered brain function due to anatomical changes within the brain.

The psychoses of tuberculous meningitis, cerebrospinal meningitis, acute chorea and various other infections, and postinfectious psychoses, are also due to disordered brain function because of changes in the anatomical structure of the brain.

In pathological alcoholic intoxication, delirium tremens, Korsakoff's psychosis and acute hallucinosis, there is anatomical alteration either in the cortex or blood vessels of the brain. This is also true of mental poisoning, gas poisoning and drug intoxication.

Traumatic and posttraumatic psychoses also have an anatomical foundation for their development.

In cerebral arteriosclerosis there is cortical degeneration and cortical edema, impaired nutrition with psychoses. We find psychoses following arterial occlusion and intracranial hemorrhage resulting in cortical degeneration.

The psychoses associated with epilepsy are due to brain deterioration; also the various senile psychoses and the psychoses associated with multiple sclerosis, paralysis agitans and Huntington's chorea.

The psychoses of Alzheimer's disease and pellagra have an anatomical basis within the brain.

The psychoses due to endocrine disorders may have an organic basis or may be due to a functional disorder of brain activity.

Involutional melancholia may be due to organic brain conditions but is perhaps more frequently due to metabolic disturbance of the brain.

The manic-depressive psychoses have the

most favorable prognosis of all the psychoses because they are perhaps always due to functional disorders of the brain; but they usually occur in those whose brains are anomalous which predisposes their development.

The schizophrenias are born with or acquire early in life, defective brains without definite pathology. This condition predisposes them to this type of psychosis. The exciting causes are many and various; they may be psychic, exogenous or metabolic.

Paranoia and paranoid states always have an anatomical basis for their development. The organic changes may be in the auditory, visual or other sensory structures. Deafness is very frequently a disability which precedes a paranoid psychosis.

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EARLY DIAGNOSIS IN ABDOMINAL DISEASES

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ST. LOUIS

A review of the cause of death in abdominal pathology reveals the startling fact that a surprisingly large per cent of the fatalities occur from diseases in which mortality could have been prevented had early diagnosis been made and appropriate treatment instituted. If every surgeon will conscientiously check his mortality record in abdominal cases for a period of years he will be astounded to see how few there were that would not have responded favorably to early medical or surgical treatment. Nor is mortality the only thing to fear or avoid in serious surgery. Morbidity, the boon companion, is ever present in varying degrees and may represent any phase of illness from slight indisposition to approaching dissolution. Whether it emanates from neglected, incomplete or ineffective surgery or predates a surgical issue, it stands as a most formidable menace to health and efficiency and all too often a bellwether of mortality.

So long as such a condition obtains we dare not boast of approaching perfection in modern surgery. We are inclined to interpret the art of surgery as an exhibition of clever technic, mechanical skill in exposing, handling and repairing diseased tissues, controlled by varying degrees of surgical judgment; yet we also know that careful history study, painstaking deliberate diagnosis, pre-operative stabilization and zealous post-operative care often require more skill and judgment than do the exercises in the oper-

Read at the 78th Annual Meeting of the Missouri State Medical Association, Excelsior Springs, May 6-9, 1935.

ating room and that they influence the end result most decidedly. A combination of all available adjuncts will not avail us in a fight against disease unless we are given access to the disease before irretrievable inroads have been made. The interests of surgery are best served when the application of prevention is feasible. The highest ideals of medicine and surgery are directed toward the prevention of disease. The abdomen presents a most fertile field of mortal risk. Early accurate diagnosis followed by such medical and surgical therapy as is calculated to halt progress of the disease, prevent complications or establish immunity, offers the surest hope of reducing mortality in serious abdominal ailments.

There can be little doubt that the development of cancer along the gastro-intestinal tract in an undetermined per cent is the response to irritation whether due to chemical change, circulatory disturbance, infection or persistent trauma or a combination of causes. From the bureau of vital statistics we learn that over 66,000 deaths from abdominal cancer occurred in the United States in 1930. Undoubtedly most of these cases had presented definite symptoms in the early stages which an informed host could have recognized as abnormal and consulted a physician. Because of this lack of knowledge few of the earlier sufferers consider themselves ill enough to visit a specialist and even the family physician is pushed aside for months while the gamut of home remedies, radio cures and neighbors' specifics is run.

Many cases of duodenal ulcer receive their first serious study and therapy when imminent or actual perforation is present or an indurated pylorus blocks the channel. Distress after eating, belching, pain, vomiting and icterus are often all required to force submission to treatment for bile tract disease. A growling appendix with localized soreness and digestive upsets must often actually snap with sharp pain and vomiting before the doctor is sought for advice. Pain and tenderness along the lower colon and sigmoid are considered constipation or spastic colon until persistent bleeding or progressive obstruction clarifies the problem. Anal bleeding receives the suppository more frequently than the examining finger of the doctor or the proctoscope.

I repeat, there are few cases of high risk advanced abdominal diseases that could not have been discovered early and probably corrected had there existed in the mind of the patient an intelligent conception of warning symptoms and of the actual potential danger of delay in seeking medical service. Is it not

evident to all of us that if mortality in serious abdominal disease is to be assuaged we must approach the problem hand in hand with the laity, through the medium of education, just as has been done in diphtheria, smallpox, yellow fever, cancer, tuberculosis and all diseases wherein any degree of effective control has been established?

Abdominal diseases of serious morbidity and high mortality, immediate or potential, are included in the following: (1) Carcinoma of the gastro-intestinal tract (stomach, bile tract, small intestine, colon, sigmoid, rectum) (2) bile tract disease, nonmalignant; (3) pancreatitis (primary, secondary) (4) peptic ulcer; (5) duodenal ulcer; (6) appendicitis; (7) diverticulitis; (8) obstruction intestinal (from new growth, adhesions, volvulus, mesenteric thrombosis, hernia, etc.) and (9) abdominal trauma (penetrating, nonpenetrating).

Indigestion is a common symptom of nearly all types of disease of the viscera; until it becomes severe it is considered by the laity as insignificant and is home treated. When to the symptoms of belching and distress after eating, controlled often for months by alkalies, are added vomiting, hematemesis, tarry stool, anorexia and loss of weight, the doctor may be given an opportunity to apply his magic at most a palliative gesture only. Acute appendicitis, pancreatitis, mesenteric thrombosis, acute intestinal obstruction, ruptured gastric or duodenal ulcer are all terminal stages of a preexisting pathology.

I regret that the allotted time will not permit a more intimate discussion of minor details in early symptoms of the various abdominal diseases which chiefly contribute to our high mortality. This omission is of sufficient importance to be made the subject of another presentation, should the suggestions herein be considered worthy of further study.

The obvious reason for unnecessary mortality is lay ignorance and indifference, ignorance of the significance of minor ailments which irritate yet respond temporarily to home treatment. When the symptoms finally become persistent, painful or disabling the period during which early diagnosis would be most beneficial has passed and the value of preventive surgery is likewise reduced, they apply for immediate and permanent relief only to learn all too often that delay has stolen their chance of recovery. Obviously, if lack of essential knowledge is the primary cause, education is the specific remedy. There are those who decry attempts to give the laity medical information. Beyond a certain point this opinion is well taken, yet none could criticize enlightenment

to the degree that would direct the patient to the doctor when certain easily recognized symptoms persist. Thus upon the doctor would rest the duty to establish protective and preventive therapy. The fear that by such systematic instruction we would make of our people a nation of disease conscious neurotics is unfounded; where a few unstable types would thus respond, a thousand would gratefully accept this unselfish attempt to curtail their illness or to keep them well.

Practical methods of dispensing the necessary knowledge should be kept strictly within ethical lines, supervised by the public health service fostered and directed by organized medicine and paid for largely by the government. The first port of call should always be the family physician; who must in turn be alert and well trained in the significance of early symptoms. A more intensive effort to reach the earliest possible diagnosis will naturally result in refinement of technic. Surgery in the main will tend to become preventive in type and morbidity and mortality will be strikingly reduced. Therefore, if our hope for improvement in control of morbidity is predicated upon the earliest possible diagnosis of approaching disease, a well defined plan of lay information is of major import.

Up to this time organized medicine has indulged only in sporadic indefinite haphazard methods of lay education. Cancer, tuberculosis, venereal disease and others have been most systematically attacked by specially interested groups with waves of success and relapse. Public health, alternately aided or restricted by such financial aid as a politically controlled source renders, has been encouragingly successful in disseminating valuable knowledge, largely through the stimulation of justifiable fear, as in diphtheria, scarlatina and other diseases of childhood possessing immediate or potential danger. Many other minor and self limited efforts are made by earnest groups, all of which bespeak the general trend of the physician toward an acceptance of the fact that control of disease and its effects must be attacked at its source before we can hope to fulfill our function as true guardians of the public health.

The potent force of prevention in both medicine and surgery has not as yet been recognized nor efficiently released by organized medicine. In my humble opinion, it is inseparably related to our economic destiny. Were there ever a propitious time to impress the state and national governments with our actual value as an independent group of organized progressive scientists, working un-

selfishly for the common good, it is now, on the eve of an attempted castigation by an unthinking public who, largely by fault of ourselves, are being led to or across the threshold of state medicine with its most certain crucifixion of medical progress and initiative.

It is the zero hour for the high unlimited ideals of organized medicine; if we continue to lie supinely upon our backs looking only into the stratosphere of ancient ideas of medical practice and fail to note and offset the throttling influence of powers and factions which surround us, we have but ourselves to blame. Many of us fail to recognize or admit that there is very definite room for improvement in the loosely coordinated organization we strive to perpetuate. An attitude of offended dignity and anger that our proud profession is being unfairly assailed, is looked upon as selfish egotism by many who are uninformed or ignorant of our problems. There is no doubt in my mind that many of those favoring a radical realignment of medical practice by regimentation, insurance supervision, commercialization, or what not, are altruistic and sincere and do not realize how seriously such changes would retard or break the phenomenal progress of medical science. Many others are distinctly and completely commercial and choose to ignore both our professional and economic rights. If to save the whole some degree of change is wise we should cease to ignore the value of a fair readjustment, accept such a part of the plan as will actually aid our objective, the public health, and by presenting a design for readaptation of our own, promoted and fostered by a militant unit including all from the individual country doctor up to the American Medical Association and the highly specialized groups, then and then only may we hope to guide this threatening tide into helpful channels.

I feel so strongly the dearth of unified action at this critical time and the need of publicly emphasizing preventive principles as a body instead of as individuals or groups, that I cannot repress these few scattered thoughts. Time marches on even in medicine. To prevent unjust punishment, medicine, as has business, may be forced to realign her attitude toward this public problem. It is the earnest belief of many that this can be accomplished without sacrificing our ethical ideals or individualism and without the need of accepting regimentation or other debasing deterrents to scientific progress, but it will demand more than irresolution and inaction by our major bodies. Actively militant, yet frankly fair consideration from both sides of the problem by organized

medicine alone, will save us from this threatened stagnation in medical channels. By meeting it now, we may succeed in applying a preventive measure far-reaching in its value to the health problems of the future and to the welfare of the practicing physician.

Practical dissemination of lay information is a difficult problem. The prime object is to supply the interested public with sufficient knowledge that they may recognize the very definite limitations of home treatment; that unusual or persistent symptoms justify a call for the family doctor; at the same time impress upon them the unlimited value of prevention, applicable alike in simple and serious disease. Even cancer, discovered early, has a much less formidable outlook; gastric and duodenal ulcer, gall tract disease, appendicitis and many other abdominal threats are dangerous diseases only if neglected.

Sooner or later, federal and state governments will put into practical service their knowledge that health conservation is of tremendous economic value. The trend toward socialized medicine, insured health and hospital service, is steady and ominous and unless we as a solid phalanx can present and sell a program that will meet their demands, and at the same time insure the solidarity and independence of our profession, in lieu of their radical politically controlled health program, we must meekly enter the lock step and sacrifice our liberty of thought and action. This we may expect and partly deserve unless we strive in every phase of our work to reduce mortality through a nation wide program of public information in health problems. Although it seems incredible, the citizen must have further proof that medicine is organized for public benefit and not as a labor union, for interests limited to the profession alone.

Profound study will be required to develop a progressive program of lay information; entire freedom from self exploitation is imperative. The patient should be directed to his family physician, who in turn may treat or refer as indicated. The program should be uniform, the instruction simple and fundamental, sufficiently persuasive to show the vital value of prevention and induce them to consult early and often their medical adviser, by far, more economical than home treatment and dangerous delay. Surgery of last resort is a sad reflection on medical progress. Serious study of the problems of health conservation, thoughtful development of a curriculum of lay education on early symptoms of disease, will without doubt insure a closer contact between patient and

doctor and timely medical or surgical treatment before the disease has become a life threat. It will also recement a public confidence in the altruistic design of our professional life; a confidence we sorely need if we sweep back the tide which threatens our economic and scientific freedom.

1222 Missouri Building.

CALCIFIED PUS IN PERITONSILLAR ABSCESS

REPORT OF A CASE

A. L. MEREDITH, M.D.

PRAIRIE HOME, MO.

O. C., Negro, aged 37, came to my office January 17, 1935, complaining of a sore throat. Two years before he came to me with same trouble. I found enlarged tonsils and beginning peritonsillar abscess. I swabbed out the throat with 10 per cent solution of silver nitrate, painted the neck over the abscess with tincture of iodine, gave some throat tablets to dissolve in a glass of warm water for gargling every hour. I



gave him some antipain tablets to take as needed. Early Monday morning, January 21, 1935, he called me to come to his home, ten miles in the country saying he was choking to death. On arriving I found him feeling well. The abscess, peritonsillar, had ruptured and a hard substance that proved to be calcified pus, $1\frac{1}{4}$ inches long and $\frac{3}{4}$ of an inch thick, the size of a lead pencil, had passed out with a large amount of pus. Tonsil reduced. Hole in tonsil feeling better.

INFECTIOUS MONONUCLEOSIS: PART II. HEMATOLOGIC STUDIES

Hal Downey and Joseph Stasney, Minneapolis (Journal A. M. A., Sept. 7, 1935), observed that examination of the biopsy material from the lymph nodes of patients with infectious mononucleosis shows that the hyperplasia of lymphocytes is not as extensive or as uniform as in cases of lymphatic leukemia. The hyperplasia of the reticulum is due to swelling and proliferation of groups or reticular cells, giving sections a spotty and nodular appearance identical with that described by Nishii after staphylococcic reinfections.

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OCTOBER, 1935

EDITORIALS

JACKSON COUNTY MEDICAL SOCIETY WILL HAVE NEW HEADQUARTERS

The Jackson County Medical Society is to have new headquarters in a building soon to be erected on "hospital hill" in connection with the Kansas City General Hospital. The new building will be situated between the present main building and the isolation hospital. An auditorium and adjoining small rooms for committee meetings will be at the disposal of the Society.

The Jackson County Medical *Journal* says this arrangement is due in large measure to the friendly understanding of City Manager Judge McElroy.

"These quarters," continues the *Journal*, "have been developed and will be maintained by the government of the municipality which these doctors serve. Notwithstanding, there has been no political coercion, and the members of the Jackson County Medical Society are not under any political obligation whatever. This mutual cooperative movement must impress upon every member of the Jackson County Medical Society the esteem in which the profession is held and the certain obligation it bears for the care of the indigent sick of this community. And that is precisely what Mr. McElroy desires. He wishes the medical profession of Kansas City to feel that it is respected and that its services are valued. He wants to encourage this ethical spirit and the gesture of the municipal government in this respect he considers nothing more than deserving and that the physicians who serve the indigent sick of Kansas City free of charge should at least be paid this recognition."

STATUS OF COUNTY MEDICAL SOCIETY PLANS

At the Excelsior Springs Session in May the President appointed a County Medical Society

Plan Committee as a subcommittee of the Medical Economics Committee. The objective of this committee was to make systematic and intensive studies of social, economic and legal subjects pertaining to the preservation of health and the care of the sick and injured, and to develop the skeleton county medical society plan when adopted by the American Medical Association to local needs. The American Medical Association did not adopt a definite plan but laid down general principles to govern county medical society plans. Confronted with these facts, it was deemed wise to develop a medical economics program in one section of the state and gradually, as actuary statistics and a personnel developed, to transplant them to other sections as they desired them.

The Medical Economic Board of the St. Louis Medical Society has for the last year and a half made an extensive study of every plan proposed in this country and abroad, and came to the conclusion that the Washington, D. C., plan modified to local needs was the ideal one. It recommended this plan to the St. Louis Medical Society and on September 17 the Society adopted the plans. Similar resolutions were adopted without a dissenting vote by the St. Louis County Medical Society and the St. Louis Dental Society. It is evident by these unanimous expressions that organized medicine and dentistry are taking a positive stand on economic problems and definitely opposed to compulsory health insurance and state medicine in Missouri.

NEW NEUROLOGICAL HOSPITAL AT KANSAS CITY

The three quarter million dollar Veterans' Hospital building, formerly the Christian Church Hospital, Twenty-Seventh and The Paseo, Kansas City, has been purchased by the Robinson Clinic to be operated as a hospital for the care and treatment of nervous and mental illnesses.

The Robinson Clinic is the continuation of the oldest privately operated hospital organization in Kansas City having been established more than forty years ago by Dr. John Punton at 3001 Paseo as the Punton Sanitarium. Since 1923 the clinic has been located in the historic Dyer mansion at 8100 Independence Road.

The new hospital will be known as the Neurological Hospital and service will be limited exclusively to the care and treatment of nervous and mental disorders and allied conditions, alcoholism and drug addiction. The hospital will be operated by the Robinson Clinic but will have an open staff, all doctors who are members of the American Medical Association being in-

vited to take their patients to the hospital and retain full charge of them.

The hospital is designed to fill a need in Kansas City and the Middle West for an institution of this character and getting away from the old sanitarium idea which has grown repellant to people. The new institution will deviate from the general type of hospital by providing recreational and other facilities suited to the care of the neurologic patient. This will be accomplished by decorating the rooms in a home-like manner with modern equipment and furniture. Large recreational rooms and a spacious roof garden, suitable for many types of recreation, are planned. The daily program will be modelled after that of an outstanding nervous and mental hospital in the East, the Retreat at Hartford, Connecticut. The Retreat was discussed in the April issue of *Fortune* and the article was reviewed in the July issue of *Reader's Digest*. A well rounded daily program will be put into effect including setting-up exercises on the roof garden, interesting and educational morning lectures, golfing, horseback riding, tennis, motion pictures and other forms of beneficial recreation. The ultimate plans call for the development of a fully equipped physiotherapy department, a modern roentgen ray laboratory and a private school for paralyzed children.

Remodeling of the fire-proof five-story building which has already begun will include a special steel casement window construction which does away with all bars, heavy screens and other prison-like window coverings thus giving the patient a sense of freedom from restraint.

The building is expected to be ready for occupancy about October 10.

AMERICAN MEDICAL DIRECTORY— 14TH EDITION—1936

Compilation of the fourteenth edition of the American Medical Directory has been started. In the two year period since the last edition was issued approximately 100,000 changes have been made to bring this new edition up to date. These corrections included 70,000 changes of addresses, 12,000 new physicians added and 7,000 deaths, as well as other changes.

In spite of painstaking effort upon the part of the Biographical Department of the American Medical Association and a seemingly impossible accuracy accomplished, the status of members often change so rapidly that shortly after the Directory is issued it does not show the latest standing of the member. That this may be avoided all physicians should establish the status they wish to have for the next two years before the Directory is published. Members who in-

tend to become fellows should do so; those who wish to show membership should be sure that their dues are not in arrears or make arrangement whereby they may delay payment; new men who are intending to be members should make their alliances in order that their standing as such may appear in the Directory.

The American Medical Association states that after every Directory is published they receive a number of complaints from physicians who have not been listed as members or fellows and thereby possibly lost appointments. One Missouri member experienced difficulty in attending European clinics because he had not become a member quite early enough to be indicated in the Directory as a member.

It will be of great aid to the Directory Department of the American Medical Association and of inestimable value to the physicians to send in their data promptly when requested and to establish the standing they wish indicated in the Directory for the next two years.

NEWS NOTES

Dr. Horace Soper, St. Louis, was a delegate to the First International Congress on Gastro-Enterology held in Brussels, Belgium, August 8 to 10.

Dr. Ralph H. Major, Kansas City, formerly professor of medicine at the University of Kansas School of Medicine has been appointed director of medical research of the school.

Dr. John Aull, Kansas City, addressed the Kansas City Pediatric Society at a meeting on September 12 on "Fresh Cow's Milk in Infant Feeding," and Dr. Harold Peterson, St. Joseph, spoke on "Nephrosis."

Dr. R. Lee Hoffmann, Kansas City, was elected president of the Kansas City Urological Society at a meeting September 4. Dr. Arthur L. Osborn was elected vice president and Dr. T. G. Dillon, secretary and treasurer.

Dr. Alix Churchill, Paris, France, associate secretary-general of the International Association for Prevention of Blindness and executive secretary of the International Union Against Tuberculosis, was in St. Louis September 21 to 23 for conferences with executives of St. Louis organizations for prevention of blindness and tuberculosis.

Dr. Sam Snider, Kansas City, conducted a clinic for chest examinations and tuberculin testing at Poplar Bluff on September 27 under the auspices of the state and county tuberculosis associations and the Butler County Medical Society. In the evening Dr. Snider addressed a meeting of the Butler County Medical Society.

Dr. Andrew C. Henske and Dr. James L. Mudd, St. Louis, were the guests of the Montgomery and Macoupin counties (Illinois) medical societies at a joint meeting held in Litchfield, Illinois, at the Elks Club August 22. Dr. Henske spoke on "The Influence of Artificial Pneumothorax on the Prognosis of Pulmonary Tuberculosis" and Dr. Mudd presented an address on "Chest Surgery."

The Trudeau Club of St. Louis will hold its first regular meeting for the 1935-1936 season at the St. Louis Medical Society building, October 3, at 8:30 p. m. The annual election of officers will be held and medical papers to be published in *Diseases of the Chest*, May issue, will be discussed. The scientific program will be an address on "Pathology of Air Embolism; With Report of a Case," by Dr. Louis Tureen, St. Louis, and "Report of Additional Cases," by Drs. Andrew C. Henske and Melvin Tess, St. Louis.

The Maternal Health Association of Missouri, St. Louis, has given advice and information on birth control to 647 persons since January 1, 1935, according to Mrs. Helen Buss, executive director. The announcement was made at the first of three informal receptions given by the association for social workers on September 6, 13 and 20. The association handled 1364 cases between August, 1932, when it was organized, and the beginning of the present year. Drs. Frederick J. Taussig and Robert J. Crossen, St. Louis, are vice presidents of the association.

The United States Civil Service Commission has announced open competitive examination for medical supervisor (psychiatric). Applications must be on file with the United States Civil Service Commission, Washington, D. C., not later than October 7. Competitors will not be required to report for examination but will be rated on their education and experience. Full information may be obtained from the Secretary of the United States Civil Service Board of Examiners at the post office or customhouse in any city which has a post office of the first or second class, or from the United States Civil Service Commission, Washington, D. C.

Dramatized radio programs in behalf of medicine and health will be broadcast by the American Medical Association over the National Broadcasting Company network beginning October 1. The theme of the programs will be medical emergencies and how they are met. The broadcast will be each Tuesday at 4:00 p. m. Central Standard Time.

Dr. Lynn M. Garner, Tuscumbia, was elected president-elect of the Missouri Public Health Association at the joint session with the Missouri Tuberculosis Association held in Kansas City, September 5 to 7. Dr. J. F. Bredeck, St. Louis, is president. Dr. Irl B. Krause, Jefferson City, was reelected president of the Missouri Tuberculosis Association.

The following members responded to invitations of the Postgraduate Committee of the State Association to deliver addresses at recent meetings of the component county medical societies:

Dr. E. Lee Dorsett, St. Louis, was the guest of the Randolph-Monroe County Medical Society at Moberly, August 13, and presented a talk on "Internal Podalic Version."

The Woman's Auxiliary sponsored an address at the State Fair in Sedalia on August 15 and Dr. Sam H. Snider, Kansas City, presented the address, his subject being "A Generation of Progress in Public Health Education."

The Randolph-Monroe County Medical Society had as its guests at a meeting in Moberly on September 10 Drs. George Hoxie and Everett R. DeWeese, Kansas City. Dr. Hoxie spoke on "The Clinical Aspect of Early Tuberculosis" and Dr. DeWeese discussed "The Roentgenological Aspect of Early Tuberculosis."

On September 11 Drs. W. E. Sauer and Julius Rossen, St. Louis, were guests of the Six County Medical Society at Kennett. Dr. Sauer spoke on "Lung Conditions Resulting from Upper Respiratory Infections from the Viewpoint of the Otolaryngologist" and Dr. Rossen spoke on "Lung Conditions Resulting from Upper Respiratory Infections from the Viewpoint of the Pediatrician."

Dr. Quitman U. Newell, St. Louis, was the guest of the Ninth Councilor District at Columbia September 17 and presented an address on "The Importance of the Recognition of Early Uterine Carcinoma With Some Remarks on Treatment."

The South Central Counties Medical Society had as its guests at Houston on September 26 Drs. Richard S. Weiss, Martin F. Engman, Jr., and A. H. Conrad, St. Louis. Dr. Weiss spoke

on "Pre-Cancerous Skin Lesions," Dr. Engman on "Contact Dermatitis," and Dr. Conrad on "The Common Drug Eruptions."

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Health Products Corporation

White's Cod Liver Oil Concentrate (Liquid)

White's Cod Liver Oil Concentrate Capsules, 3 minims

White's Cod Liver Oil Concentrate (Liquid) Vials, 50 cc.

Hoffmann-LaRoche, Inc.

Larocaine Hydrochloride

Lederle Laboratories, Inc.

Cod Liver Oil Concentrate Liquid (Lederle)

Cod Liver Oil Concentrate Liquid (Lederle) Vials, 5 cc.

Cod Liver Oil Concentrate Liquid (Lederle) Capsules, 3 minims

Diphtheria Antitoxin "Globulin-Lederle-Modified"

Erysipelas Streptococcus Antitoxin "Globulin-Lederle-Modified"

Tetanus Antitoxin "Globulin-Lederle-Modified"

Wm. S. Merrell Company

Ampoules Solution Dextrose 50%, 20 cc.

Ampoules Solution Dextrose 50%, 50 cc.

Parke, Davis & Co.

Diphtheria Toxoid—P. D. & Co., one 0.5 cc. vial package

Diphtheria Toxoid—P. D. & Co., one 5 cc. vial package

Diphtheria Toxoid, Alum Precipitated—P. D. & Co., one 0.5 cc. vial package

Diphtheria Toxoid, Alum Precipitated—P. D. & Co., one 5 cc. vial package

E. R. Squibb & Sons

Iodobismitol with Saligenin (Squibb)

OBITUARY

ADDISON FLETCHER BROWN, M.D.

Dr. A. F. Brown, Malta Bend, a graduate of Washington University School of Medicine, 1904, died in a Kansas City hospital July 5, aged 58.

Dr. Brown was born in Malta Bend where he grew to manhood. After completing his medical education he returned to Malta Bend to practice. He was a loyal member of the Saline County Medical Society.

"Dr. Fletcher" as he was generally called spent his life ministering to the ill and afflicted in his rural community, performing his duties faithfully and quietly, day or night, not seeking the higher fame and honor that all his friends and patients felt sure could have been his. He had the love and admiration of all those who knew him.

He is survived by his widow, Mrs. Flora Brown, a stepdaughter, two sisters and a brother.

MARTIN YATES, M.D.

Dr. Martin Yates, Fulton, a graduate of Bellevue Hospital Medical School, New York, 1876, died April 9, aged 83.

Dr. Yates was born on the Yates homestead about three miles northwest of Williamsburg, Missouri. He received his academic education at Westminster and William Jewell colleges. As a young man he settled in Callaway County to practice medicine and for more than fifty years he ministered to the physical needs of thousands. Several generations of families came under his medical skill. Many of these now live in distant places but still remember the kindly face and the tender sympathy that marked his service as a physician.

Dr. Yates was one of the few remaining pioneers who recalled the hardships that came with making country calls on horseback or in a buggy. He unflinchingly answered every demand made upon him, even in his advancing years.

Dr. Yates retired from active practice four years ago. When he was 79 years old he suffered a severe attack of pneumonia and for a time his life was despaired of. After recovering from this he returned to his office practice for about six months but the ordeal had taken much of his strength and together with the handicap of advancing years he found the task too great to overcome.

Dr. Yates served the Callaway County Medical Society as secretary for many years. He was elected an honor member in 1931.

He is survived by three sons, two daughters and several grandchildren.

WALLACE A. ARMOUR, M.D.

On June 14, 1935, the Jackson County Medical Society and the medical profession of Kansas City lost one of its oldest and most respected members through the sudden death from apoplexy of Dr. Wallace A. Armour.

Dr. Armour was born in Chagrin, Ohio, July 23, 1867, of Scotch-Irish parentage. He moved to Kansas City with his family in 1880. Most of his education he received in the Kansas City schools. While a student in Central High School he was also acting as letter carrier.

After finishing high school he entered the Kansas City Medical College from which school he graduated in 1895.

Dr. Armour was a real family physician, the type, which, owing to the overgrowth of specialism, is fast disappearing. His patients were his friends and his chief concern and their ultimate welfare was his greatest compensation. To relieve their suffering no night was too disagreeable, no day too crowded, no distance too great to keep him from hurrying to their aid; and much of his time was given to those who were unable to pay for his services. In turn, he was beloved and respected by all his patients.

As a physician he brought to his work that skill and sympathy and understanding which spelled success.

In spite of a large practice he found time for other fields of activity. He was a 33rd degree Mason and a Knight Templar and was the recipient of many honors from the Order. In politics he was a Republican and was a member of the Board of Education for six years, commencing in 1918; he served on the committee to select a site for the Paseo High School. He was like-

wise active as a member of the First Baptist Church and was a tireless worker in the Business Men's Bible Class of Ivanhoe Temple, serving for a time as vice president and president of that institution. During the World War he was a member of the draft board. At the time of his death he was an honorary member of the Jackson County Medical Society, Missouri State Medical Association and the American Medical Association.

Besides his wife, Mrs. Addie Armour, whom he married in 1887, Dr. Armour leaves two daughters, a son, a sister and three grandchildren, to all of whom the Jackson County Medical Society extends its deep felt sympathy.—I. J. W. from the Jackson County Medical Journal.

W. ELMER MONTGOMERY, M.D.

Dr. Montgomery was born in Clayton, Illinois, and was graduated from the University Medical College of Kansas City in 1897. He did postgraduate work at Bellevue Hospital, New York City.

He had resided in Kansas City, Missouri, since 1888. He was a member of the Jackson County Medical Society and the affiliated organizations including the American Medical Association. At one time he was demonstrator of anatomy at the University Medical College. He was a member of the Aesculapian Society and was a 32nd degree Mason. He was a member of the Central Presbyterian Church. He served as a captain in the medical department of the U. S. Army during the Spanish-American War.

He represented a high type of the fast-disappearing family doctor who knew how to be both a physician and friendly counsellor. He leaves an aching void in the hearts of many of his patients who have profited by his sympathetic ministrations.

The commercial phase of medicine was not considered in his program. His services were given to the rich and poor alike, but his charity patients probably received his most generous effort.

Dr. Montgomery will be missed by the community which he so faithfully served.—M. A. H. from the Jackson County Medical Journal.

ROY FALLAS MILLS, M.D.

Dr. Roy Fallas Mills died at Bell Memorial Hospital July 18, 1935, of endocarditis after an illness of several months. He was born in 1880 at Albion, Michigan, but his early years were spent in Greencastle, Indiana, where his father was professor of art in DePauw University. He attended preparatory school at Ulster Academy, Kingston, New York, and graduated from Baker University, Baldwin, Kansas, of which his uncle, Dr. Lemuel Murlin, was president. He received his medical training at the University of Kansas and at the University of Chicago. After being engaged in general practice at Odessa, Missouri, several years, he moved to Kansas City in 1924 and has specialized in internal medicine.

As a teacher at the University of Kansas Medical School he was at his best in clinical demonstrations with small groups. His carefulness, his wit and his aptness at description made an unforgettable impression upon his students.

He was interested in community service, and as a member of the Health Conservation Association wrote and made radio speeches on various aspects of preventive medicine.

In private practice his relations with his patients were unusually close. They learned to rely upon his

honesty, frankness and sympathy, and looked upon him as a personal friend as well as a physician.

Dr. Mills was a unique and unforgettable personality. Tall, slender and grave in manner, his brilliant flashes of wit came with the force of the unexpected. He was modest, but when occasion arose he could express his convictions, which were always strong, fearlessly and with vigor. He was conscientious and thoroughly good, but these qualities came out in action, never in words. He was without pretense, and any type of insincerity was entirely foreign to him.

His profession and his friends can ill afford to lose him, just when his capacities and influence were broadening and ripening.—E. T. G. from the Jackson County Medical Journal.

HEMATURIA AS A COMPLICATION OF PREGNANCY

Harold L. Morris, Detroit (Journal A. M. A., Aug. 10, 1935), found that in a routine study of 154 urologic consultations because of urinary tract disturbance during pregnancy, hematuria occurred in thirty cases. Further study of these thirty patients revealed cystitis in all cases; pyelitis in twenty-two, of which twenty were bilateral and two were unilateral; hydronephrosis in ten, two of which were bilateral and eight unilateral; pyonephrosis of the right kidney in two cases, and ptosis in nine cases, four being bilateral, four right and one left. Megaloureter occurred in eleven cases, of which four were bilateral, six right and one left. Ureteral calculus of the right ureter was present in two cases, and ureteritis in two cases, one bilateral and one of the right ureter. Hematuria is a grave complication of pregnancy, and in all instances of hematuria occurring during pregnancy the very least the patient is entitled to is a thorough investigation by a competent urologist.

DIAGNOSIS AND PROGNOSIS OF EPITHELIAL TUMORS OF LARGE BOWEL

Walter A. Fansler, Minneapolis (Journal A. M. A., July 20, 1935), believes that large epithelial tumors usually give symptoms definite enough to call attention to them. Their diagnosis either above or within the field of proctoscopic visualization is not too difficult and their prognosis is fairly certain. Small epithelial tumors frequently give no symptoms. If low enough to be seen through the proctoscope they can be readily diagnosed. Above this area diagnosis is often impossible. All epithelial tumors except the degenerated fibrous type offer some danger from malignant degeneration. Some of these tumors, especially the flat button-like lesions, are frequently malignant from their earliest development. Because of this danger all epithelial tumors, no matter how small, within reach of the proctoscope should be destroyed by electrocoagulation or fulguration, since this is a simple procedure devoid of danger. Small tumors with a definite pedicle, which lie so high in the bowel that they cannot be reached through a proctoscope and would require a laparotomy for removal should be observed periodically and removed at once if there is any sign of activity. In some cases one is justified in simple local destruction of small tumors, though definitely malignant. Caution should be used in advising this procedure, especially in the case of flat button-like lesions. If this method is to be applied at all in malignant cases, one must be careful not to extend its use too far because of its simplicity or the insistence of the patient. In a questionable case the physician must insist on more radical procedures.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1935

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Ste. Genevieve County Medical Society,
December 12, 1934.

Chariton County Medical Society, Janu-
ary 3, 1935.

Perry County Medical Society, January 4,
1935.

Moniteau County Medical Society, Janu-
ary 10, 1935.

Camden County Medical Society, Febru-
ary 26, 1935.

Schuyler County Medical Society, March
18, 1935.

Lewis County Medical Society, April 2,
1935.

Holt County Medical Society, April 18,
1935.

Lincoln County Medical Society, April 18,
1935.

Pike County Medical Society, May 15,
1935.

Saline County Medical Society, May 21,
1935.

Benton County Medical Society, July 9,
1935.

CAPE GIRARDEAU COUNTY MEDICAL SOCIETY

The Cape Girardeau County Medical Society met
August 12 at Cape Girardeau.

A motion picture on "Anesthesia" furnished by the
Winthrop Chemical Company was shown. Professor
McGill of the Teachers' College furnished and operated
the motion picture machine.

A committee was appointed to draw up resolutions
on the death of Dr. Paul R. Williams, Cape Girardeau.
The committee, composed of Drs. J. H. Cochran, M. H.
Shelby and Rusby Seabaugh, was instructed to pre-
sent the resolutions to the family and not hold them
over until the next meeting.

Meeting of September 9

The Cape Girardeau County Medical Society met in
the Court House at Jackson, September 9, the presi-
dent, Dr. D. I. L. Seabaugh, Jackson, in the chair.

Members present were Drs. D. I. L. Seabaugh, B. W.
Hays, Rusby Seabaugh and D. G. Seibert, Jackson;
T. G. Tygett, H. L. Cunningham, D. Elrod and
C. A. W. Zimmermann, Cape Girardeau.

A letter from Mr. E. H. Bartelsmeyer requesting
members to lend their aid toward securing advertising
for the State JOURNAL was read.

An invitation from the Mississippi Valley Medical
Society was read as was one from the Inter-State Post
Graduate Medical Association of North America.

A letter from Miss Katherine L. Kottkamp, Ameri-
can Red Cross Public Health Nurse, with enclosed re-
port of her recent work in the district was read. In
this connection the secretary announced that he had

been visited by the Rev. Beardsley and a Red Cross
representative who requested that the president of the
Society be asked to appoint a committee with the ob-
ject of having a Red Cross nurse appointed perma-
nently. It was pointed out that the above named
nurse had seriously overstepped her authority and that
this often happens. Dr. H. L. Cunningham moved that
the request be tabled; Dr. B. E. Hays seconded and it
was unanimously carried.

Dr. Rusby Seabaugh, Jackson, gave a lengthy and
most interesting discussion on "Spinal Anesthesia."

C. A. W. ZIMMERMANN, M.D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society met in special
session September 11 with twenty-one members present.

It was voted to send flowers to Dr. A. B. Clark who
has been confined to his home by illness for several
weeks.

The purpose of the meeting was to discuss the possi-
bility of establishing a Medical and Dental Credit
Bureau in Joplin. Dr. W. S. Loveland, Joplin, called
on Dr. R. M. James, Joplin, who has been studying the
plan, to explain it to the Society. Dr. James related
what he had learned at a meeting which he attended
several weeks previously in St. Louis.

Victor Hinton who had been invited to attend dis-
cussed in detail the proposed plan as it could be used
in Joplin, taking as a basis the plan now in operation
in Washington, D. C.

Mr. Hinton's remarks were discussed by Drs. L. C.
Chenoweth, C. T. Reid, P. L. Pritchett, E. O. Kings-
borough, R. M. James and Ed. James.

It was moved and seconded that such a bureau be
organized. The motion carried. The president ap-
pointed a nomination committee consisting of Drs.
R. M. James, Paul Walker and E. O. Kingsborough to
nominate twelve men, seven to be elected as a board
of directors.

A meeting was called for September 17 to discuss
this proposition further.

J. W. HARDY, M.D., Secretary.

PERRY COUNTY MEDICAL SOCIETY

The Perry County Medical Society was called to
order by the president, Dr. O. A. Carron, Perryville,
at 8:30 p. m., at Dr. J. J. Bredall's office, Perryville,
September 12.

A letter was read from Dr. E. J. Goodwin, Secre-
tary of the Missouri State Medical Association, con-
gratulating the Perry County Medical Society on their
work of reviving its activity and keeping it on the
active list.

A letter was read from Mr. E. H. Bartelsmeyer,
business manager of the Missouri State Medical As-
sociation, asking members to respond more often to the
advertisements in THE JOURNAL.

A report on the recently organized Perryville Physi-
cians' Credit Association which is sponsored by the
Perry County Medical Society revealed that it is a
success and the members are reaping benefits from it.

A resolution drawn up by Dr. J. J. Bredall regarding
the Perryville druggists promiscuously refilling pre-
scriptions, advertising patent medicines in the news-
papers, etc., and requesting the cooperation of the drug-
gists, was adopted by the Society and copies are to be
presented to every druggist and physician in Perryville.

Dr. E. Van Note, Wittenberg, was a visitor.

J. J. BREDALL, M.D., Secretary.

RANDOLPH-MONROE COUNTY MEDICAL SOCIETY

The Randolph-Monroe County Medical Society met August 13 at the Chamber of Commerce Rooms, Public Library, Moberly. The meeting was called to order by the president.

Dr. John D. Maddox, Moberly, was elected to membership.

The scientific program consisted of an excellent talk illustrated with lantern slides on "Internal Podalic Version" by Dr. E. Lee Dorsett, St. Louis. This talk was enjoyed by all and a general discussion followed.

The following members and guests were present: Mr. E. H. Bartelsmeyer, St. Louis; Drs. E. Lee Dorsett, St. Louis; G. W. Hawkins and F. L. Harms, Salisbury; M. C. McMurry, G. M. Ragsdale and T. P. Leonard, Paris; W. E. O. Johnson, Madison; J. B. Stokes, Excello; J. P. Allen, Cairo; G. B. Bowers, C. C. Smith, L. E. Huber, T. S. Fleming, P. C. Davis, Jesse Maddox, John D. Maddox, L. O. Nickell, C. H. Dixon and M. E. Kaiser, Moberly.

Following the meeting a lunch was served at Miller's Cafe.

MAX E. KAISER, M.D., Secretary.

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

14th Annual Meeting, Kansas City, 1936

President, Mrs. Rogers N. Herbert, Nashville, Tennessee.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

12th Annual Meeting, Columbia, 1936

President, Mrs. M. Pinson Neal, Columbia.

President-Elect, Mrs. W. C. G. Kirchner, St. Louis.
Adviser, Dr. J. F. Harrison, Mexico.

The May issue of the *Bulletin* of the American Medical Association contains an excellent article by Mrs. David S. Long, Harrisonville. Mrs. Long has been appointed national chairman of public relations for the third time.

The Woman's Auxiliary through its public relations chairman, Mrs. W. L. Allee, Eldon, arranged a health talk at the Missouri State Fair at Sedalia. Dr. Sam Snider, Kansas City, spoke on "A Generation of Progress in Public Health Education."

The members of the Woman's Auxiliary extend their sincerest sympathy to Mrs. Paul Williams, Cape Girardeau, in the death of her husband, Dr. Paul Williams. Mrs. Williams is third vice president of the State Auxiliary and was for some time the president of the Cape Girardeau County Auxiliary.

The Woman's Auxiliary to the Southern Medical Association will meet in St. Louis, November 20 and 21. All women attending the meeting are invited to attend the meetings of the Auxiliary. Members and eligible members of Missouri county auxiliaries are invited to attend the luncheon meeting Wednesday, November 20, at 12:30 p. m., and also the annual meeting, November 21, at 9:30 a. m.

Mrs. J. V. Bell, Kansas City, chairman of the ladies' committee for the fall meeting of the Kansas City Southwest Clinical Society, October 7-10, announces the following social activities: Monday, registration, mezzanine floor of the Hotel President. Tuesday, tea at the home of Mrs. Raymond E. Teal, 815 Huntington Road. Wednesday, luncheon, Woman's City Club at 1:00 p. m., William Rockhill Nelson Gallery of Art tour at 8:00 p. m. Thursday, escorted tours to sites of interest in Kansas City. There will be a dinner of the Clinical Society on Thursday evening to which the wives of the registrants are invited. With the exception of the dinner Thursday evening all functions are complimentary to the women whose husbands are registered for the conference.

MISCELLANY

SIXTH PAN AMERICAN MEDICAL CRUISE

P. T. BOHAN, M.D.

KANSAS CITY, MO.

The Sixth Pan American Medical Cruise left New York for South America, June 29. On board there were 125 doctors, 75 doctors' wives and about 225 other passengers.

After the first three days, which were rather hot, the weather was quite comfortable even when crossing the equator and the sea was nice and smooth both going and coming. Stops from four to twelve hours were made at Nassau, Kingston, and Curacao. Nearly all passengers disembarked and the women found many "real bargains."

All passengers thoroughly enjoyed the day in Kingston, the capital of the Island of Jamaica. This is the largest of the British West Indies Islands with a population of approximately 1,000,000, of which more than 95 per cent are black or colored. A drive over the island in the forenoon afforded an opportunity to see an infinite variety of tropical flowers, fruits and vegetation of all kinds. In the afternoon the Jamaica branch of the British Medical Society held a reception on the lawn of the Myrtle Bank Hotel for the medical members of the cruise. There were a few welcoming addresses by the Governor of the Island and the Jamaica doctors. President Chevalier Jackson thanked the profession of Kingston for its generous hospitality and, after every one satisfied his thirst with Planters punch and Jamaica rum, the passengers returned to the boat which left at 9 p. m.

On July 5 there was a four hour stop at Curacao where the passengers filled their baskets with a variety of cordials, fruits and fresh eggs.

The next eight days were spent on the mid-Atlantic. The equator was crossed on Tuesday night, eleven days after leaving New York and four days before reaching Brazil. At 9 a. m. on Sunday, July 13, the boat docked at Rio de Janeiro; but long before sunrise the cabins were vacated and the decks crowded as the passengers were all excited and thrilled at arriving at the most beautiful harbor in the world. None was disappointed. By a three minutes' walk from the wharf Avenida Rio Branca was reached. This is a beautiful street, one hundred feet wide and about two miles long with business houses on either side.

The morning was spent in a drive around the city and then to the Jockey Club where a delicious luncheon, including cocktails (very good) and champagne were served by the medical profession of Rio to the

members of the cruise. In the afternoon many took advantage of an opportunity to lose a few milreis at the race course. Sunday evening a reception was held in one of the theaters and speeches (all in Portuguese) were made by his Excellency, Dr. Getulio Vargas, president of the United States of Brazil, and apparently by all the members of the medical profession of Rio.

The medical program and clinics at the hospitals on Monday and Wednesday (Tuesday was a holiday) were of little interest on account of the language. Only a few of the papers were interpreted (and this didn't help much) and only a few of the Brazilians spoke English and none of the Americans spoke or understood Portuguese.

The facilities for teaching in Brazil are not quite as good as in this country but good enough. The University of Rio, maintained by the government, is the largest of the nine medical schools in Brazil. There were over 2000 students enrolled last year. The clinical teaching is largely didactic. It is a four years' course and the entrance requirements are two years of college following high school graduation.

The fees for medical services, considering the economic status of the people and the depreciated currency, are very good. Both the rich and poor are well cared for and the amicable relation between the profession and the public is not disturbed by interference of the government, commercial doctors or welfare workers, with the result that both the people and the doctors are satisfied. Politically the Brazilians are having their troubles but they have had their independence only forty-five years. Labor is cheap; a policeman's pay is \$14 a month, chauffeurs on the busses get \$25 a month and common laborers in the cotton fields get 20 cents a day. But living is cheap; food costs practically nothing. There are no labor unions and there is not an unemployed man in Brazil.

Rio, the federal capital, has a population of 1,400,000 and is apparently booming. One writer says that Rio is not only the most beautiful city in the world but the cleanest as not only the streets but the houses are washed every night. It looks it. According to most of the reliable information obtainable, the health conditions in Rio compare favorably with other cities. About 85 per cent of the population is Portuguese and they are well dressed and appear to be a healthy, industrious and intelligent people. Yellow fever has been practically stamped out; the death rate is only slightly higher than in New York City and there are nearly as many centenarians in Rio as in the whole of France. Yet, coming home on the boat, a doctor from the Rockefeller Foundation stated that he had information from unquestionable authority that in matters pertaining to the prevention of disease, such as the disposal of garbage, water supply and in everything relating to sanitation, Rio is the worst city in the world. However, there are certain extenuating circumstances which will not be mentioned but must be considered before this unqualified indictment of "beautiful Rio" is accepted.

On Monday night, July 16, the boat left for Santos which is about eighty miles south of Rio. From Santos the medical members and their wives journeyed by auto or on a cogwheel railway forty miles to the inland city of Sao Paulo. Two days were spent there. At the reception in the evening ten American doctors made speeches to a large audience of Portuguese. For this feat of heroism these brave souls were given medals by the Brazilian government. Sao Paulo, capitol of the State of Sao Paulo, is a metropolitan city of 1,200,000. Less beautiful than Rio, it is grow-

ing rapidly and it is said to be the best business city in Brazil. Although predominantly Portuguese, there are over 80,000 Italians and less than 800 English speaking people. Due to the generosity of Mr. Rockefeller, the medical school has more buildings, better equipped laboratories and newer and cleaner books in the library than in the Rio school, but only about half the number of students.

The object of greatest interest in Sao Paulo to both medical and lay visitors is the Institute of Butantan, the snake farm, in charge of Professor Amaral, the discoverer of antivenim for snake bites. Equally interesting and more instructive is the leprosy colony, the largest in the world. At the present time they have over 1600 patients exhibiting all the various manifestations of the disease. The doctors in charge of the colony say they have found no therapeutic agent of any value. The belief is that leprosy is contracted through external contact, perhaps by the bite of insects of which there are many varieties in South America.

On Friday evening, July 18, before leaving Santos, a reception was held on the boat for the Brazilian doctors. Many touching farewell speeches were made in both English and Portuguese. Professor Amaral, on behalf of the profession of Brazil, awarded medals to some of the doctors that had been overlooked at Sao Paulo. Why the editor of the *Journal of the America Medical Association*, the spokesman for the profession of the United States, was not recognized caused considerable comment.

On the return voyage short stops were made at Porto Rico, the Port of Spain (Trinidad Island) and Bermuda.

Beginning the second week out from New York there was a medical program on the boat every forenoon and afternoon, and this was repeated on the return trip. There were one hundred and fifty papers read and they were comparable in every way to papers heard at any medical meeting. All branches of medicine were represented. President Jackson and the program committee did an excellent job in grouping subjects so that each day there were one or more papers of interest to every doctor whether engaged in general practice or special work. All papers were presented before a general session. This made it possible to contact and educate the lay members of the cruise.

The subjects that had the greatest appeal to the non-professional group were psychology, venereal disease, glandular therapy and birth control. Margaret Sanger's "new deal" idea in defying nature in peopling the earth created so much interest that a whole Sabbath forenoon was devoted to the discussion of it. Just who is to be born and when was not definitely decided.

Though all the papers presented were good, a few deserve special mention. The two papers of greatest interest were by Behrens, of St. Louis, on "Gigantism," and one by Dennie, of Kansas City, on "The Use of Hot Baths in the Treatment of Syphilis." Dennie's discovery that a bath of twenty minutes' duration in water 114° F. will increase the body temperature to from 104° to 105° is of the greatest practical importance.

Barbour, of Peoria, reported his results in the treatment of 130 cases of asthma in children. He minimizes the importance of allergy in therapy and considers it merely as evidence of an imbalance of the nervous system. He advises a full diet without food restriction of any kind, and has used glandular therapy, such as thyroid extract, grains $\frac{1}{4}$, and the dried suprarenal substances, grains 2, every two hours during an attack with excellent results.

Hartman, of Rochester, read a good paper on "The

Treatment of Ulcer." He said that in 1915 in the Clinic all ulcer cases were considered surgical while now 70 per cent are given the medical treatment. He has found the Sippy management the most satisfying and deprecated the use by a few doctors of various agents put out by commercial pharmaceutical houses to be used intravenously or subcutaneously.

A paper on glaucoma, by Otis Wolfe, of Marshalltown, Iowa, was well received and liberally discussed. The oculists agreed that glaucoma is the cause of 10 per cent of the blindness that occurs in old people and that a contributing factor in this is the wearing of dark glasses.

The real treat of the medical program was a few talks by Dr. James Ewing. In the discussion of tumors, he said the only known predisposing cause is heredity and that the exciting cause is not and probably never will be known. He thinks it is probably intimately connected with the problem of growth. Hodgkin's disease, according to Ewing, is probably a form of avian tuberculosis. In the same lymph node he has found the typical histological picture of Hodgkin's disease and also of miliary tuberculosis. The ingestion of chicken livers as a possible mode of contracting the disease was mentioned.

Dr. Ewing complimented the program committee on the program presented and made special reference to "the one original paper," which showed that ameba histolytica may live in water and that a defective sewerage pipe in a Chicago hotel was the cause of the widespread epidemic of amebiasis which occurred a few years ago.

All agreed that Dr. Ewing is a better pathologist than a bridge player.

In both the medical program and the social activities Fishbein played a prominent role and even modest Morris would probably not deny that he did his part well. On only one occasion was he conspicuous by his absence; this was a meeting of the nose and throat men to which he had a special invitation but he did not attend.

All in all, the cruise could be considered a success and well worth while. As a means of combining rest and pleasure with an opportunity to obtain information, the whole voyage was ideal. With scientific papers every day, swimming, deck games, cards, talks by Lenz on bridge, a picture show and dancing every evening there was no occasion for any one to become bored or lonesome.

The president-elect is Dr. Alberto Inclan of Cuba. Though more timid and retiring than the dynamic Chevalier Jackson, he seemed to be highly respected and quite popular with the small group that knew him intimately. Under his leadership the next cruise should also be a success.

906 Medical Arts Building.

BOOK REVIEWS

COLLECTED PAPERS OF THE MAYO CLINIC AND THE MAYO FOUNDATION. Edited by Richard M. Hewitt, B.A., M.A., M.D., and Lloyd G. Potter. Volume XXVI. Philadelphia and London: W. B. Saunders Company. 1935.

This new omnibus of medical progress consists of 1192 pages and includes 86 papers in full, 31 by abridgment, 65 by abstract and 459 by title.

One may read first of "Idiopathic Steatorrhoea" or

last of "The Spontaneous Occurrence of Brucella Agglutinins in Dogs." But there is much else of medicine, surgery and the kindred specialties sandwiched in the intervening pages. No field of medicine is ignored and every reader will find something to his taste.

The articles in general are of high quality, informative, interesting and well written. They are a tribute of excellence to the Mayo Clinic and The Mayo Foundation.

B. S. P.

ARTHRITIS AND RHEUMATOID CONDITIONS: THEIR NATURE AND TREATMENT. By Ralph Pemberton, M.S., M.D., F.A.C.P., Professor of Medicine in The Graduate School of Medicine, University of Pennsylvania; Chairman of the American Committee for the Control of Rheumatism (Ligue Internationale Contre Le Rhumatisme); Member of the Council on Physical Therapy of the American Medical Association, etc. French Translation of First Edition, 1933. Second Edition, thoroughly revised. Illustrated with 69 engravings and a colored plate. Philadelphia: Lea & Febiger. 1935. Price \$5.50.

Any method of treating arthritis which results in 73 per cent cures is deserving of careful consideration. Yet the peculiar virtue of the method described by Pemberton is that it is not a method. Rather he proposes a set of methods which must be individually applied to individual cases: Elimination of focal infection; reducing, highly absorbable diets; colonic irrigation; vaccines and nonspecific protein therapy; physiotherapy of various types; and, of least importance perhaps, drugs, especially the alteratives.

There is much repetition in the volume but possibly the author uses it advisedly. The reader may disagree with much of his theoretical discussion in the chapter on dynamic pathology but of much greater importance to the patient is the therapeutics of the disease; and the author's success in this difficult field cannot be gainsaid. Perusal of this volume will well repay any physician confronted with patients suffering from any of the various forms of arthritis.

B. Y. G.

MEDICINE IN THE MIDDLE AGES. By David Riesmann, M.D., Sc.D., Professor of the History of Medicine and Professor Emeritus of Clinical Medicine, University of Pennsylvania; Member, History of Science Society and Medieval Academy of America. Illustrated. New York: Paul B. Hoeber. 1935. Price \$5.00.

This volume was written with the specific purpose of supplying the medical student and the intelligent laymen with authentic data bridging the gap between the end of the period of Greek culture and science and the beginning of the Renaissance. In scouting about in my mind for the most suitable way of saying that the book has a telling appeal it occurred to me that if I were forced to construct a cover blurb for it I should say: "Do you know: That no one knows just when the Middle Ages began nor when they ended? That the Arabic period in medical history is so called because the writings were in Arabic and not because the authors were Arabian? That such modern words as alcohol, zenith, zinobar and alkali are European adoptions from the Arabic? That there was a physician pope? That our language even today shows evidences through words and phrases of the early dominance of the pseudo science, astrology? That doctors were once required to be celibate?"

Such an introduction ought to emphasize the peculiarly interesting appeal of this book which treats the Middle Ages not as dry-as-dust period steeped in Aristotelian and biblical dialecticism but, rather, as an era quick with vibrant possibilities. In order to give the volume such a complexion the author has adopted his own method of discussing episodes, men, institutions, diseases and plagues, systems of philosophy and habits and customs.

There are thirty-four chapters; they detail Greek, Jewish, Arabic and monastic medicine, the School of Salerno, scholasticism, astrology and alchemy, the founding of the universities, the birth of the new anatomy, the barber surgeons and the medical guilds, the various decimating diseases of the Middle Ages, an admirably full and yet condensed history of the origin of syphilis, medieval textbooks of medicine, medieval hospitals and other allied and no less interesting subjects.

The chief charm of the book lies not only in the fact that it furnishes what seems to be accurate and well checked information on these many topics, but also because the substance is presented critically and at the same time entertainingly through the agency of a smooth, attractive prose style, reenforced by an excellent selection of eighty illustrations. Then, too, the publisher, Hoeber, has lived up to his well established tradition of fine book-making. M. G. S.

1000 QUESTIONS AND ANSWERS ON T. B. Edited by Fred H. Heise, M.D., Medical Director, Trudeau Sanatorium and Question Box Editor, *Journal of the Outdoor Life*. 50 West 50th Street, New York City: *Journal of the Outdoor Life*. 1935. Price 75 cents.

These questions and answers are those developed during the years of publishing the *Journal of Outdoor Life*. Now that that journal is being discontinued the board of directors felt that these results should be made permanent by issuing them in book form.

Dr. Heise has done a fine piece of work in arranging and editing these questions and answers for one can by using the index turn to almost any point in the discussion on tuberculosis and see the answer presented by the National Tuberculosis Association. These answers are clear, concise and do not seem to dodge the issue.

Your reviewer would recommend the reading of this book by physicians because it is the reading of such simple questions with their answers that makes the physician review his own knowledge of the subject and at the same time clarify his own opinion. G. H. H.

CLINICAL TUBERCULOSIS. Edited by Benjamin Goldberg, M.D., F.A.C.P., F.A.P.H.A., Associate Professor of Medicine, University of Illinois College of Medicine. Honorary Professor of Medicine, National University of Mexico. Formerly Director of the City of Chicago Municipal Tuberculosis. In two volumes. Fully illustrated with over 640 half tone and line engravings and nine full-page color plates. Philadelphia: F. A. Davis Company. 1935. Price \$22.00.

These two volumes together weigh eight pounds and two ounces. The paper is heavy calendered which shows off the illustrations to advantage but the weight makes the books rather unwieldy for reading purposes.

The changing viewpoint in tuberculosis and its problems is well illustrated by these volumes which

devote at least half of the space to surgical procedures in connection with the disease. This tendency has its good and bad sides. Thus, it may be used as an incentive for patients to have their tuberculosis treated; but on the other hand it may be used to allow people to remain in their homes and thus keep a number of children in contact with the disease. For up to the present time the theory that pneumothorax and other surgical procedures render the patients immediately innocuous to their families and especially to children remains unproved.

It will be noticed that most of the thirty-three collaborators are new authorities in the field and that some of the older wheel-horses do not appear.

It is a book for the tuberculosis specialist rather than for the general practitioner. G. H. H.

THE PNEUMONOKONIOSES (SILICOSIS) BIBLIOGRAPHY AND LAWS: By George G. Davis, M.D., Associate Clinical Professor of Surgery, Rush Medical College, University of Chicago, Ella M. Salmonsén, Medical Reference Librarian, The John Crerar Library, Chicago, and Joseph L. Earlywine, Attorney at Law, Chicago. With a foreword by E. R. Le Count, M.D., Professor and Chairman, Department of Pathology, Rush Medical College, University of Chicago. Chicago: Industrial Medicine, Inc. 1934.

This bibliography will furnish guides to many pertinent original sources for engineers, radiologists and physicians who are especially concerned with industrial medicine and occupational diseases. The citations are listed chronologically, beginning with Agricola's *De re metallica*, 1556 (for which there is, unfortunately, no cross reference to Hoover's translation into English, item 625), and closing with references to periodical literature down to December 31, 1933. There are no notes. The Catalogue is followed by an excellent Subject-Index, which is in turn followed by a "reference group index," a good Authors' Index, and an important "reference year index." Pp. 347-475 are given over to a digest of the official statutes and of the medico-legal cases applicable to the subject, arranged alphabetically by states. The volume is well printed and bound and will be a very valuable library tool to everyone who has an interest in its material. C. D. H.

OBJECTIVE AND EXPERIMENTAL PSYCHIATRY. By D. Ewen Cameron, M.B., Ch.B. (Glas.) D.P.M. (Lond.) Physician in Charge, Reception Service, Provincial Mental Hospital, Brandon, Man.; Formerly Assistant Physician, Glasgow Royal Mental Hospital, and Instructor in Psychiatry, Johns Hopkins University; Henderson Research Scholar, Volontairarzt, Stadt-sanstalt; Burghoelzli, Zurich. New York: The Macmillan Company. 1935. Price \$3.00.

This book along with a number of others in the same tenor gives some hope that psychiatry is about to pull out of the mire in which it has been for some twenty years and again become scientific. The author takes up strictly objective and experimental approaches to psychiatry including such subjects as word association tests, conditioned reflexes, blood pressure, blood chemistry, the action of various drugs and chemicals, constitution, heredity and pathology. The exposition is very skillful and accurate although in some instances, as for example in the case of pathology and of heredity, it is so brief as to leave a misleading impression. The introductory considerations are so aptly phrased that any

psychiatrist might well have them framed and placed in his office for daily reference.

But by definition and plan so much material of first importance is excluded in this work as seriously to impair its usefulness. One wonders why the anatomy and physiology of mental activity about which so much has been disclosed in recent years and which are so extremely revealing have been entirely excluded. Again, we shall never get a proper understanding of either normal or pathological mental processes unless we have some idea about disease processes and their effects, for example the post encephalitic mental changes in both adults and children, the thalamic syndrome, the mental confusion which is a part of the syndrome of Marie's aphasia, the frontal lobe syndrome, and the effects of abiotrophy and other selective disease processes. The knowledge gained from Dandy's numerous ablations is nothing short of revolutionary and no book which fails to mention the facts so disclosed can be strictly accurate and up-to-date.

The book should be useful in a preparatory course in medical schools and to physicians who wish to brush up on some more recent trends in psychiatric research. As far as it goes it is heartily recommended.

L. B. A.

A TEXTBOOK OF BIOCHEMISTRY. Edited by Benjamin Harrow, Ph.D., Associate Professor of Chemistry, The City College, College of the City of New York, and Carl P. Sherwin, M.D., Sc.D., Dr. Ph. LL.D., Member of the Staff of St. Vincent's Hospital and French Hospital, New York City. Illustrated. Philadelphia and London: W. B. Saunders Company. 1935. Price \$6.00.

This text was planned, according to the editor's statement, for teachers and students of medicine, chemistry and allied branches. The thirty chapters were written by thirty contributors because the editors believe that biochemistry "has become so encyclopedic in its scope that it seems an impossible task for any one individual to write an adequate textbook."

The thirty chapters average twenty-five pages in length and each is followed by a list of references which are noted by number in the text. In addition there is a bibliographic index of some 2700 references. The index of subjects is extensive and requires eighteen pages. There are fifty-two figures as well as numerous charts and tables. Considerable space is devoted to structural formulas of chemical compounds.

The book presents the factual evidence and interpretations which form the basis for the current teachings in biochemistry. Laboratory procedures are not included in the text. The twenty-four American and six British contributors are for the most part teachers of biochemistry or of related medical subjects. The names of Bloor, Chambers, Cori, Drummond, Heidelberg, McCollum, Plimmer, Rowntree, etc., indicate the competence of the contributing staff.

A textbook should be primarily a manual of instruction in which the author presents his material in an orderly and correlated fashion. Any book written by numerous authors must of necessity suffer from some repetition and lack of correlation. The editors of this text have made a serious effort to unify the individual chapters. In this difficult task they have been only moderately successful. However, multiple authorship has the advantage that it gives the reader the benefit of discussions of controversial topics by men specializing in those particular subjects.

The wide scope of the book probably precludes its use as an introductory text in biochemistry. Furthermore, a few chapters such as one on the physical chemistry of amino-acids and proteins are too advanced for beginning students. In general this book should serve as an up-to-date and readable reference work particularly valuable as a means of reviewing special phases of the field of biochemistry. Chapters on the biochemistry of microorganisms and on immunochemistry increase its value in this respect.

W. H. G.

A TEXTBOOK OF CLINICAL NEUROLOGY. By Israel S. Wechsler, M.D., Professor of Clinical Neurology, Columbia University, New York; Attending Neurologist, Neurological Institute and The Montefiore Hospital, New York. Third Edition, reset. 826 pages with 162 illustrations. Philadelphia and London: W. B. Saunders Company. 1935. Price \$7.00.

That a third edition of this book covering at least briefly all phases or diseases in the field of clinical neurology was necessary within eight years speaks for its popularity. The author has thoroughly revised the entire work. Due consideration is given all important as well as more uncommon neurological states. It is a work which may be used as a guide for teachers, practitioners of medicine and medical students.

In line with the general trend of the appreciation of historical matters as related to medicine there has been added "An Introduction to the History of Neurology." The author, admitting the difficulties in writing on such a subject, has covered this very well in forty pages. Naturally such limitations do not allow much space to any one of the many men or historical topics under discussion. Brief accounting of important personalities alone usually appear. Possibly we might question why this chapter appears at the end of the book. To some it may seem more apropos to have a historical review appear in the front portion of the book. However, the author may be correct in making this arrangement.

The ever increasingly important subject of encephalitis is considered conservatively. Most all of the divisions and varieties are given careful attention.

Several pages are devoted to "Examinations of the Cerebrospinal Fluid," as a subdivision under "Interpretation of Signs and Symptoms." While the author emphasizes the extreme diagnostic value of studies of this fluid therapeutic possibilities are also given some consideration. Like nearly all books dealing with this subject the author vaguely refers to a pathological pleocytosis beginning at about ten cells per cubic millimeter. The reviewer believes that this figure should be placed much lower, which contention is verified by writings to be found in the literature.

With the several types of muscular atrophies myasthenia gravis is briefly but carefully presented. Mention of some of the newer drug treatments for this disease is to be found.

About one page is devoted to the treatment of acute anterior poliomyelitis. The immune serum both from humans and monkeys for treatment in the early acute stages and for the prevention, is mentioned as having possible values. The treatment for the various late stages and sequelae is outlined.

The material is well divided and clearly presented. A considerable number of illustrations, appropriately selected for the various topics, may be found.

A. L. S.

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TUMORS OF THE HEAD OF THE PANCREAS

THE VALUE OF CHOLECYSTENTEROSTOMY

WM. T. COUGHLIN, M.D.

and

JOHN M. McCAUGHAN, M.D.

ST. LOUIS

In referring to the surgical treatment of carcinoma of the pancreas, Moynihan stated: "The treatment of malignant disease of the pancreas by the surgeon can hardly be said to exist." This pronouncement, however, must not be taken literally for further reading of Moynihan indicates a different view with regard to palliative surgical management which is not apparent in the foregoing quotation.

The first report of this condition to appear in the literature was said to have been made by Mondiere in 1836. Many valuable contributions to this subject have been made since 1900, notably by Hulst, 1905; Futcher, 1919; Speed, 1920; Eusterman, 1922; Parmentier and Chabel, 1923; Kiefer, 1927; Friedenwald and Cullen, 1929; Judd and Parker, 1928; Walters, 1929, and Collier and Winfield, 1934.

It is true that a few bold and intrepid operators have attempted the removal of malignant neoplasms of the head of the pancreas, but the results can hardly be regarded as encouraging and the difficulties from a technical standpoint are very great. The surgical relief of the obstructive jaundice so commonly associated with tumors in the head of the pancreas, however, is a matter which deserves considerable more emphasis than has been given to it.

To quote again from Moynihan, "No one living is infallible in the differential diagnosis of obstructive jaundice. The diag-

nosis is always so difficult and the chance of a life saved so important, that however positive the evidence of malignancy may be, I now advise operation in all cases. Apart altogether from the prolongation or saving of life, almost every patient will declare that the relief from the maddening torture of itching is worth every sacrifice. I suspect that the mortality from suicide in this disease is greater than that from the operations which afford relief."

While the risk even of exploration in deeply jaundiced patients is very great, modern methods of preoperative preparation by means of intravenous injections of calcium chloride and blood transfusions to prevent hemorrhage and the administration of a diet high in carbohydrate to obviate further liver damage and the selection of the proper moment for operating through a careful study of the fluctuations of the bile pigment in the blood, enable the surgeon to bring his mortality for all types of patients with obstructive jaundice to within reasonable limits.

Judd and Parker in 1928 reported 137 cases on which biliary intestinal anastomosis had been performed for obstructive jaundice. Of this group, thirty-four cases had carcinoma of the pancreas. The average post-operative life of these patients was 7.7 months and the hospital mortality was 27 per cent. Recently, Collier and Winfield reported a series of thirty palliative operations on patients for carcinoma of the head of the pancreas with a hospital mortality of 25.6 per cent. In the patients who survived, the symptoms were in general relieved; for example, 78.25 per cent were relieved of pain, 100 per cent of pruritus and 94.14 per cent completely or partially of jaundice.

While these results at first glance may not appear worth while, nevertheless, jaundice, pruritus and hemorrhage make the daily existence of these patients so unpleasant that although a cure cannot be anticipated by

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cholecystenterostomy, nevertheless adequate internal biliary drainage may be expected to relieve the intolerable symptoms. This type of operation for carcinoma is of course entirely palliative; and yet in an occasional case which was thought to be carcinoma cholecystenterostomy will result in cure. In such cases it may be shown to have been a chronic pancreatitis and not a carcinoma. The chief justification for operation, therefore, is that it prolongs life and relieves the patients of a great deal of unnecessary suffering.

This report is based on a study of thirty-four cases of carcinoma of the pancreas collected from the records of the following hospitals associated with St. Louis University School of Medicine, St. Mary's Infirmary, St. Mary's Hospital and Firmin Desloge Hospital. It covers a period of ten years (1924-1935). During that time the combined number of hospital admissions was 75,733. Of the thirty-four patients comprising this report twenty-two were males, twelve were females. The oldest patient, a male, was 83 years of age and the youngest, also a male, was 33 years of age. The average age was 58 years. A tabulation of the frequency of the various signs and symptoms is shown in table 1. The signs and symptoms of cachexia; namely, weakness and loss of weight, occurred most frequently in our series. The loss in weight varied from 5 pounds to 50 pounds. The average loss was 28.3 pounds. These symptoms were in turn followed by jaundice, clay colored stools, pruritus, palpable liver, anorexia, nausea, palpable gallbladder and vomiting. Constipation was three times as common as diarrhea, and pain alone occurred in fifteen of these patients, colic and pain in nine patients and colic alone in one. There was neither pain nor colic in twelve of the patients. When the relation of jaundice and type of pain was correlated these proportions were not significantly altered, for of the twenty-two patients who stated that the jaundice had been constant from the onset there were nine with pain alone, five with pain and colic and eight who had had neither pain nor colic. In five patients with jaundice of

an intermittent type, one had pain alone, two pain and colic and two neither pain nor colic. The practical importance of these data with respect to pain and icterus is the clarification of the differential diagnosis in the jaundiced patients. The frequency of pain in jaundice resulting from biliary obstructions due to tumors of the head of the pancreas, we feel, is not sufficiently appreciated. The total duration of the symptoms varied from one week to three years. The average was nineteen weeks. The duration of the jaundice when reported as constant, varied from one week to one and one half years. The average duration was eleven weeks. This series does not differ significantly from other series previously published with respect to the relative incidence of signs and symptoms.

Certain laboratory aids to diagnosis and particularly prognosis should be more generally used as a means of increasing our general knowledge of jaundice if for no other reason. Of the twenty-seven patients with jaundice, for example, nine had had a quantitative Van den Bergh estimate of the serum bilirubin. The lowest reading obtained was 2.8 and the highest was 13.8 mgms. per 100 cc. of blood serum. The average was 6.1 mgms. An icterus index was obtained in seven patients and varied from 22.7 to 75. A liver function test was made in three patients and a duodenal drainage was carried out in only one patient. The blood amylase was estimated in one patient and found to be within normal limits. The value of a gastro-intestinal roentgen ray in the diagnosis of pancreatic tumors and cysts has been regarded highly by some roentgenologists who call attention to displacements or enlargements of the normal contour of the second part of the duodenum. This method of diagnosis, however, has received little attention in the surgical literature. In this series, gastro-intestinal roentgenograms were made in eleven cases. In one of the cases not operated upon a displacement of the duodenum was noted. This patient died in the hospital but a necropsy examination was refused. In the ten remaining cases, all with tumors of the head of the pancreas, verified either by operation or postmortem examination, the roentgen ray observations were interpreted as follow: In four cases the films were reported negative. In two patients a distortion of the second part of the duodenum was present but was interpreted as a result of gallbladder disease. In three patients obstruction to the pylorus from gastric carcinoma or ulcer was diag-

TABLE 1.
TABULATION OF SIGNS AND SYMPTOMS AND THEIR FREQUENCY IN THIRTY FOUR PATIENTS WITH TUMORS OF THE HEAD OF THE PANCREAS.

| Symptoms and signs | No. of cases | Percent | Symptoms and signs | No. of cases | Percent |
|-----------------------|--------------|---------|--------------------------|--------------|---------|
| Weakness | 27 | 84.4 | Constipation | 15 | 44.1 |
| Loss of weight | 27 | 79.4 | Pain, alone | 14 | 41.1 |
| Jaundice | 27 | 79.4 | No colic or pain | 12 | 35.2 |
| Clay colored stools | 24 | 70.5 | Colic and pain | 8 | 23.5 |
| Pruritis | 24 | 70.5 | Asthenia | 9 | 26.4 |
| Palpable liver | 22 | 64.7 | Fever | 5 | 14.9 |
| Loss of appetite | 21 | 61.7 | Diarrhea | 5 | 14.9 |
| Nausea | 16 | 55.8 | Colic, alone | - | - |
| Palpable gall-bladder | 19 | 55.8 | Chills | 1 | 2.9 |
| Vomiting | 18 | 52.6 | Total rel. colic or both | 72 | 64.7 |

nosed. In two of the cases a correct diagnosis of pancreatic tumor was made by roentgenography. In other words, in only two of ten proved cases was a diagnosis made by roentgenography.

Of these thirty-four patients, twenty-five were subjected to surgical operations and nine were not operated on. Of the latter eight died in the hospital and one refused operation and left the hospital. The average length of life of these eight patients was 15.5 days after admission to the hospital, and clinically with few exceptions they were in such poor general condition that nothing could be done for them. Of the twenty-five patients who were operated on, sixteen had a cholecystenterostomy of some type, three had a gastroenterostomy, one had a cholecystostomy. In five of the patients the abdomen was closed as soon as the nature of the pathology was evident. Table 2 shows a complete tabulation of the clinical data in the sixteen patients who were treated by cholecystenterostomy and table 3 shows the results according to the type of surgical pro-

TABLE III.
SUMMARY OF THE RESULTS ACCORDING TO THE TYPE OF SURGICAL PROCEDURE AND IN THE TWENTY-FIVE OPERATIVE CASES.

| Type of operation | No. of Cases | Died in Hosp. | IMMEDIATE RESULTS | | | LATE RESULTS | | |
|------------------------|--------------|---------------|-------------------|----------------|---------------------------------|--|----------------|---|
| | | | Complete Relief | Partial Relief | Still Living | Now Dead | Not heard from | |
| Cholecystenterostomy | 16 | 7 (43.75) | 5 | 4 | 1 (3mo.) 1 (mo.) (5 yrs.) | 5 (3mo.) 1 (mo.) 1 (mo.) 1 (mo.) 1 (mo.) | 1 | |
| Gastroenterostomy | 3 | | 1 | 2 | | 1 (3mo.) | 2 | |
| Cholecystostomy | 1 | | | | 1 | | | 1 |
| Exploratory laparotomy | 5 | 3 | | | 2 | | | 2 |

cedure used. The figures are, of course, too small to have statistical importance.

A cholecystenterostomy of some type was made in sixteen patients. In ten patients the anastomosis was made with the stomach, in three with the duodenum, in two with the jejunum and in one with the ileum. Seven of these patients, or 43.8 per cent died in the hospital. The period of survival varied from five days to one hundred twenty days. The average was 45.8 days. There were nine patients who left the hospital and the immediate results were given as complete relief of symptoms in five and partial relief in four.

Table II

Tabulation of the Complete Clinical Data on Sixteen Patients Having Biliary Intestinal Anastomoses For Obstruction of the Head of the Pancreas.

| No. of cases | Color Age Sex | Duration of symptoms | SIGNS AND SYMPTOMS | | | | | | | | | | | | | | Type of pain | Fever | Chills | Jaundice | Grey discoloration | Vanden-Berghe index | Died in hosp. | Results | | | | Comment | | | |
|--------------|---------------|----------------------|--------------------|----------------|------------------|--------|----------|----------|--------------|------------|-------|---------------------|---------------------|---------------------|---------------------|-----------------|--------------|-------|--------|----------|--------------------|---------------------|---------------|----------------|-----------|--------------|----------|---------|----------------|---|--|
| | | | Weakness | Loss of weight | Loss of appetite | Nausea | Vomiting | Diarrhea | Constipation | Flatulence | Colic | Colic and colic and | Colic and colic and | Colic and colic and | Colic and colic and | Complete relief | | | | | | | | Partial relief | No relief | Still living | Now dead | | Not heard from | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 54 M | 15 yrs. | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | Living five yrs. after operation. Chron. pancreatitis. |
| 2 | 45 M | 5 mos. | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | Terminal pneumonia no post-mortem |
| 3 | 65 F | 1 mo. | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | Living 16 months after operation |
| 4 | 47 M | 8 mos. | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | Died of hemorrhage 17 months after operation |
| 5 | 72 M | 3 mos. | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | Died of hemorrhage 6 months after operation |
| 6 | 54 M | 6 mos. | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | Died one year after operation |
| 7 | 57 M | 3 mos. | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | Autopsy: carcinoma pancreas & gen. peritonitis |
| 8 | 64 F | 2 mos. | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | Died 16 months after operation |
| 9 | 60 F | 18 yrs. | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | Autopsy: chronic pancreatitis. Pulmonary embolism |
| 10 | 51 M | 4 mos. | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| 11 | 60 F | 6 mos. | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | Post-mortem exam. refused. |
| 12 | 66 M | 6 mos. | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | Autopsy: carcinoma pancreas with metastases; common bile duct carcinoma pancreas with metastases. Peritonitis, hemorrhage. |
| 13 | 55 M | 7 mos. | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| 14 | 73 F | 3 mos. | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | Died 14 months after operation. No post-mortem. |
| 15 | 72 M | 2 mos. | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | Autopsy: carcinoma pancreas with metastases. |
| 16 | 50 M | 1 mo. | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | Living three months after operation. |

Of these nine patients three are still living, one three months, one fourteen months and one five years. Five of the patients are dead. The period of survival was six months, twelve months, fifteen months, seventeen months and in one other known to be dead the date of death was not available. One patient was not heard from. Of the three patients who had gastroenterostomies there were no deaths in the hospital. At the time of dismissal from the hospital, one had complete relief of symptoms and two had partial relief. Two of these patients were not heard from later and one was known to be dead. Jaundice was present at the time of operation in only one of these three patients but pyloric or duodenal obstruction was either in existence then or impending in all. The patient who had had a cholecystostomy obtained no relief and was not heard from later. Of the five patients who were simply explored, three died in the hospital and two were not heard from after dismissal. Of the eight nonoperative patients who died in the hospital a postmortem examination was made in all but one. A carcinoma of the head of the pancreas with metastasis was found in all but one and in that case there was a chronic pancreatitis and biliary cirrhosis with ascites. The immediate cause of death clinically was due in one case to cardiovascular failure, in three to exhaustion from generalized abdominal carcinomatosis and in four from a terminal bronchopneumonia. Of the ten operative deaths a postmortem examination was obtained in all but three. A carcinoma of the pancreas was found in all but one and this patient had a chronic pancreatitis and died postoperatively of a pulmonary embolus. The causes of death in these cases is given as: Bronchopneumonia in three; hepatic insufficiency in one, peritonitis in four with an associated intraperitoneal hemorrhage in one of them, pulmonary embolism in one and cardiorenal insufficiency in one.

The important point is that all the operative cases exhibited a hard mass in the pancreas and the surgeons after careful palpation and inspection could not be definitely certain whether the tumors were malignant or inflammatory in character. The removal of tissue from the pancreas for diagnosis is considered unwise by many surgeons and it was done but once in this series. The pathologist in this instance reported an adenocarcinoma and the patient subsequently died in the hospital. As mentioned previously all the operative cases exhibited

a hard mass in the pancreas; but in one, now living five years following a cholecyst duodenostomy and gastro-enterostomy, it must be concluded that the lesion was an inflammatory one.

The following case records illustrate the problems incidental to the management of pancreatic tumors producing biliary obstruction and emphasize the importance of establishing adequate internal biliary drainage.

REPORT OF CASES

The first case, a patient of Dr. W. T. Coughlin, was a white male, aged 54, admitted to St. Mary's Hospital, June 3, 1929, complaining of a dull aching pain in the right upper quadrant of the abdomen, flatulency, belching, constipation, light yellow stools and nervousness of two years' duration. Had typhoid fever thirty years previously and at that time was jaundiced. The physical examination was essentially negative except for a slight tenderness in the right upper quadrant. There were no masses palpable and neither the liver nor gallbladder could be felt. His best weight he stated was 200 pounds and his present weight 180 pounds. The systolic blood pressure was 142 mm. of Hg and the diastolic, 88 mm. of Hg. The temperature and respirations were normal. On laboratory examination there were 5200 leukocytes; 5,320,000 erythrocytes and a hemoglobin of 80 per cent. The clotting time was three and three fourths minutes. Urinalysis normal. A presumptive diagnosis of cholecystitis was made and on June 4, 1929, an abdominal exploration was performed. At operation, a hard mass was found in the head of the pancreas and it was impossible to say definitely whether it was a chronic pancreatitis or a carcinoma. The liver appeared cirrhotic. It seemed advisable to secure better biliary drainage and accordingly, an anastomosis between the gallbladder and duodenum was made. Furthermore, a posterior gastro-enterostomy was also undertaken because it was feared that the second portion of the duodenum might become obstructed. The patient made an uneventful recovery and was dismissed on June 21, 1929, at which time he stated that he was completely relieved of his previous symptoms. This patient was admitted to the hospital subsequently in 1932, 1934 and 1935 for treatment of a cardiovascular complaint. At the present time he is in fairly good health and has had no recurrence of his former abdominal disturbance.

Case 2, a patient of Dr. J. M. McCaughan, was a single white female, aged 73, who was admitted to the Firmin Desloge Hospital on October 13, 1933, complaining of jaundice, pruritus, loss of weight and strength and diarrhea with clay colored stools, of five months' duration. On physical examination, the jaundice was graded 3 plus on a basis of 1 to 4 and there were many scratch marks over the body which bore mute testimony to the intensity of the itching. The liver edge could be felt a hand's breadth below the right costal margin but the gallbladder itself was not definitely palpable. There were no areas of tenderness and no other masses palpable in the abdomen. The ankles were slightly edematous. The present weight was 93 pounds. She had lost 11 pounds in four months in spite of a ravenous appetite, and was having 10 to 12 fatty stools daily. The systolic blood pressure was 140 mm. of Hg and the diastolic pressure 90 mm. of Hg. The temperature and respirations were normal. On laboratory examinations, the urine was normal; leukocytes 6,450 and 3,700,000 erythrocytes. The hem-

oglobin was 15 grams and the color index 1.17. The differential count was essentially normal. The bleeding time was three and one half minutes and the clotting time three and one half minutes. The Kahn test was negative. The blood N. P. N. was 28 mgms. per 100 cc. and the blood sugar 80 mgms. per 100 cc. The blood amylase estimates gave values within normal limits. The van den Bergh was direct positive and the quantitative estimate gave a value of 13.9 mgms. per 100 cc. of serum. The roentgenograms of the stomach revealed a displacement of the duodenum to the right but the roentgenologist attributed this to gallbladder disease. A provisional diagnosis of obstructive jaundice due to a tumor of the head of the pancreas probably malignant, was made. On November 3, 1933, the abdomen was explored after preliminary preparation with chloride intravenously, carbohydrates and a blood transfusion. At operation a hard mass 6 by 4 by 3 cms. was found in the head of the pancreas. The gallbladder and common duct were thin walled and greatly distended. The liver was greatly enlarged but there were no metastatic nodules. The stomach and duodenum were normal. A cholecystoduodenostomy was performed. The patient had an entirely uneventful convalescence and at the time of dismissal on November 18, 1933, the jaundice and pruritus were completely relieved. Her appetite was excellent and the administration of pancreatic ferments by mouth seemed to control the excessive loss of nitrogen and fat in the stools. This patient lived for fourteen months and was entirely comfortable until the last few weeks of life. There was a gradually progressing cachexia but a recurrence of biliary obstruction did not occur. She died, January 1, 1935. A postmortem examination was refused.

The operation of cholecystenterostomy (Fig. 1) is performed in much the same way as the ordinary side to side intestinal anastomosis. The union is made between the fundus of the gallbladder and the upper part of the gastro-intestinal tract. The important principle is to obtain apposition without tension. The stomach or duodenum have been most frequently used, but in some instances operators have found it more convenient to utilize the upper jejunum or even the ileum. The better blood supply of the stomach and its thicker walls make it the site of election. If the gallbladder is distended it may be emptied with a trocar before beginning the suturing. The Doyen clamps may be used but it is considered preferable by many because of the danger of injury to the gallbladder from the clamps to accomplish this step without them by means of stay sutures placed at either end of the line of the proposed anastomosis. The fluid from the gallbladder and intestine can be aspirated with a suction pump and a dry field maintained. After the region is well packed off the first row, a continuous Lembert suture, brings the peritoneal coats of the gallbladder and intestine together. If three rows of sutures posteriorly are desired an incision is made through the peritoneal and muscular coats and these are united with a simple running

suture. The incision is then extended into the lumen and a continuous lock suture is applied to the posterior margin. The anterior walls are finally brought together in the same manner except that the suture may be locked from the inside to secure better hemostasis. The final row anteriorly is simply a continuation of the first row previously introduced posteriorly and inverts the anterior suture line. The line of anastomosis may be protected with tags of omentum. It is probably better to place a small drain at either angle of the anastomosis for a short time to care for any bile leakage which may occur. Some writers advocate the use of the Murphy button and assert that better hemostasis is thus secured and that a lumen of constant size maintained regardless of swelling from edema or infection. Walters has described a method for performing cholecystenterostomy in two stages which he has used in a number of exceptionally poor risk patients with good results. He believes the graded procedure lessens the risk of operation by relieving the jaundice before the anastomosis is attempted. We have had no personal experience with this method but see no reason why it should not be satisfactory in selected cases.

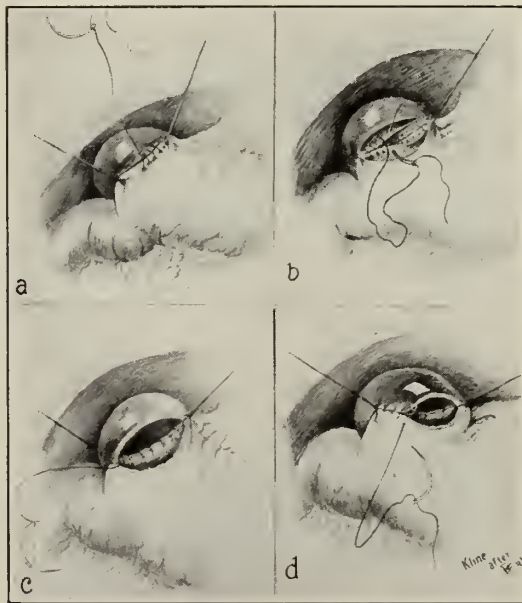


Fig. 1. Operative technic: (a) Posterior row uniting gallbladder and stomach. Interrupted traction sutures at either end of line of anastomosis. (b) Second row posteriorly; the peritoneal and muscular coats have been divided. (c) The third row posteriorly; a continuous lock stitch unites the mucous membrane of stomach and gallbladder. (d) The beginning of the first row anteriorly as a continuous locking suture. The second row anteriorly will be a continuous Lembert suture as in (a).

(Illustrations adapted from W. Walters in "Cholecyst-gastrostomy," Surg. Gynec. & Obst. (June) 1926.)

CONCLUSION

The chief purpose of this paper is to call attention to the value of internal biliary drainage in malignant or inflammatory obstructions of the head of the pancreas, even though the incidence of such lesions is relatively low because an analysis of this group of patients obtained from the case records of three large general hospitals indicates a need for greater emphasis on the importance of this procedure. Furthermore, we feel that external biliary drainage in such patients is deplorable and although one finds few instances of such measures reported in the literature, yet the general impression gained from discussing this matter with physicians and from general observation is that external biliary drainage for the relief of biliary obstruction originating from tumors of the head of the pancreas is not infrequent.

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BIBLIOGRAPHY

1. Coller and Winfield, J. M.: Evolution of Palliative Operations for Cancer of the Pancreas, *Am. J. Surg.* **25**:64-69, 1934.
2. Eusterman, G. B.: Carcinoma of the Pancreas; A Clinical Study of 138 Cases. *Tr. Am. Gastroenterol. Assn.* **25**:126, 1922.
3. Friedenwald, J., and Cullen, T. S.: Carcinoma of the Pancreas, Clinical Observations, *Am. J. M. Sc.* **176**:31-41 (July) 1928.
4. Fletcher, T. B.: Cancer of the Pancreas, *Tr. A. Am. Phys.* **34**:284, 1919.
5. Hulst, S. P. L.: Zur Kenntniss der Geneses des Adenokarzinoms und Karzinoms des Pankreas, *Virchow's Arch. f. path. Anat.* **180**:288-316 (May) 1905.
6. Judd, E. S., and Parker, B. R.: Biliary Intestinal Anastomosis for Obstructive Jaundice; Analysis of 137 Consecutive Cases, *Arch. Surg.* **17**:1-17 (July) 1928.
7. Kiefer, E. D.: Carcinoma of the Pancreas, *Arch. Int. Med.* **40**:1-29 (July) 1927.
8. Mondiere: Quoted by Parmentier and Charbrol.
9. Moynihan, Berkeley: Abdominal Operations, Philadelphia and London, W. B. Saunders, **2**:528-529, 1926.
10. Parmentier, E., and Chabrol, E.: Les tumeurs solides du pancreas, *Nouv. Traite de Med.* **15**:197, 1923.
11. Speed, K.: Carcinoma of the Pancreas, *Am. J. M. Sc.* **160**:1-10 (July) 1920.
12. Walters, W., and McVicar, C. S.: Relief of Obstructive Jaundice From Tumors in the Head of the Pancreas, *Ann. Surg.* **89**:237-246 (February) 1929.

DISCUSSION

DR. W. T. COUGHLIN, St. Louis: I think Dr. McCaughan's paper says almost everything that is in my mind concerning this condition. The idea that carcinoma of the head of the pancreas produces a painless jaundice was imparted to me by my teachers. We were therefore taught to believe that the chronically ill patient with painless jaundice must be suffering from cancer of the pancreas, and that a similar patient with jaundice and suffering pain must be the victim of gall stones. Neither of these assumptions is altogether true. I remember very well how I stood by watching a case of painless jaundice die a medical death and at the postmortem examination we found a stone protruding from the common duct into the duodenum, nearly halfway out, gangrenous and sloughing.

If a patient past 45 years of age comes with a jaundice of the obstructive type, with or without pain, it is not safe to make a positive diagnosis without operation. And even at operation we have sometimes been unable to make a positive diagnosis. If, for ex-

ample, I have made a diagnosis of cancer of the head of the pancreas in such a case, and then anastomosed the fundus of the gallbladder to the stomach and such a patient lived for six years, it is practically certain that I erred in the diagnosis; and even though the mass felt and looked like cancer it must have been something else, most probably an inflammatory condition. The operation of cholecystogastrostomy or cholecystoduodenostomy has a place for the relief of the jaundice due to an obstruction below the cystic, the common or the hepatic ducts. A good deal has been said against such anastomosis. The chief objection seems to be that the patients develop infection of the ducts and finally of the bile radicles, cholangitis. Perhaps the technic of the operation has something to do with the development of such an ascending infection. One could imagine a wide stoma allowing stomach or duodenal contents to be extruded into the gallbladder, but I have always made the stoma small to begin with, and it undoubtedly shrinks with the lapse of time. How often does one find that nature has made an anastomosis between gallbladder and duodenum or gallbladder and stomach. I have known this to happen. I know of at least a half dozen such cases. I do not know a single instance in all such anastomoses that I have done that has had the slightest symptom that could be attributed to an ascending infection. I think it is easier to anastomose the fundus of the gallbladder to the prepyloric portion of the stomach than to anastomose it to the duodenum. The one works just as well as the other. The excision of a portion of the hard mass and its immediate examination would seem the logical thing to do. Well, I have done it, and the pathologist has been mistaken, just as I was; and then to cut into a cancer at any time, especially an intra-abdominal cancer that one cannot remove, is not a good thing to do. Whether it be cancer or not, one is most likely not going to remove it. The only tumors of the pancreas that are removable are the benign or encapsulated adenomata. I never knew of one that was jaundiced; perhaps they are, undoubtedly they could be if the adenoma were in the proper site. I believe that a surgeon who has had experience will come as near to making the correct diagnosis from the gross specimen as the pathologist can with the hastily prepared frozen section. The operation of cholecystocolostomy has been proposed. I mention it only to condemn it.

The postoperative course has always been very smooth except in one case where the patient bled into his stomach. He had to be reopened, the bleeding spot was found and a stitch controlled it thus saving his life. The patient who has had this operation done for cancer of the pancreas may live long enough afterward to acquire stenosis of the duodenum. Therefore, I consider it wise to do a posterior gastrojejunostomy at the same time, provided the patient is in good condition. Recently a patient of mine on whom the cholecystogastrostomy was performed more than two years before, began to have serious attacks of vomiting. In her case I had not performed the posterior gastroenterostomy because of her weakened state at the time. She vomited bile and did not become jaundiced and yet, I am informed, she was operated on at another institution and the common duct drained externally. Of course, she did not survive for very long. I think it is a very bad practice to make permanent external biliary drainage in cases of obstructive jaundice due to pancreatic disease or stricture of the common duct. One should be able to deal properly with any surgical condition that may arise before one even opens the abdomen for any consideration whatever.

DIAGNOSIS AND MANAGEMENT OF CANCER OF THE STOMACH

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The frequency of cancer of the stomach has markedly increased in the last few decades and today has reached the staggering mortality of 35,000 persons per annum, which represents about one third of all deaths from cancer. Such a high death rate places a big problem before the profession for reduction or solution if possible. It is certain no appreciable change can be made except through early surgical extirpation of the lesion. The problem therefore is to educate the public to seek early medical advice for persistent stomach distress and to impress upon the profession the necessity of thorough investigation for early obscure malignancy. It is true there are no early signs or symptoms of a beginning cancer of the stomach and for that reason a careful roentgenological search should be made for its existence and early exploration advised in suspicious cases, or in those whose symptoms cannot be explained in a definite manner. The problem rests first in getting the patient under medical observation. This difficulty is exemplified by Gatewood's report which shows that out of a series of 209 cases a period of five and eight tenths months elapsed from the beginning of symptoms before professional aid was sought and a total of eight and three tenths months passed before surgical intervention could be instituted. Alvarez's amazing report shows the futility of attempting to get the public to seek early advice when an analysis of forty-one cases of cancer of the stomach in physicians coming under his observation showed symptoms had been present for an average of eleven months before they presented themselves for diagnosis and treatment. If physicians, who are acquainted with the possibilities and dangers in delay, fail to secure early treatment how foolish it is to expect the layman to recognize the necessity for early diagnosis.

Delay in instituting surgical intervention is often due to the indifferent attitude of the physician toward the patient's complaint and failure to investigate thoroughly the cause of the distress, accompanied by the reluctance of physician to advise and the patient to accept surgery when the diagnosis is made or gravely suspected. This is due to an erroneous conception that if it is cancer nothing can be done and surgery is useless except when obstruction occurs. Such sur-

gical intervention is only a method of palliation and results only in affording temporary relief and prolonging the miserable existence of the unfortunate individual. The present conception of the futility of extirpation of the stomach lesion is the result of the inoperable state of most patients before surgery is advised and the lack of knowledge of the results of early operation. In other words, so few cases in every community have been operated upon for resection at a sufficiently early period that no personal contact and observation have been present to change the prevailing opinion of the inadequacy of early surgical intervention. Those who have knowledge of this type of surgery take a different position due to the improved condition of the patients, the prolongation and comfort of their lives and the occasional five or ten year cures that occur when early operation is performed. To all it has been a source of satisfaction in the comfort and extension of life that has been observed even when cure was impossible. We attack cancer boldly in other parts of the body but have a feeling of surrender and cowardice when confronted with cancer of the gastro-intestinal tract. The patient has everything to gain and nothing to lose and the surgeon has the satisfaction of extending life and comfort at a mortality risk well within reasonable limits for such a formidable procedure.

The etiology of cancer is not known. The relationship of ulcer and benign tumors to cancer is debatable but unquestionably are predisposing causes. Chronic irritation on the lip and benign tumors of the breast, or old lesions of the cervix uteri predispose to cancer; why not then do these not play an important part in an organ so susceptible to cancer as is the stomach. Noted authorities place the relationship of ulcer to cancer at from 20 to 25 per cent while others say the relationship does not exceed 3 to 5 per cent. Horsley states that benign tumors are far more frequent in the stomach than we formerly believed and that cancer does not form on normal mucous membrane. Some pre-existing ulceration or benign tumor formation must be present. Miller, Eliassen and Wright found 35 per cent of a series of benign tumors of the stomach showed cancerous involvement.

The successful treatment of cancer of the stomach depends upon early diagnosis, early operation, accessibility and mobility of the tumor, presence or absence of metastasis and the type of cellular manifestation found in the growth.

The early symptoms must be carefully analyzed and one must not wait until the

cardinal signs of emaciation, pain, vomiting and a lump in the upper abdomen are present before making a diagnosis and advising surgery. Inoperable conditions, as extensive fixation or metastasis, will usually prevent radical removal when such symptoms and signs are present before operation.

Unfortunately no characteristic early symptoms usher in the disease. Many forms of stomach distress may be experienced but notable among them as suggested by Moynihan are four distinct types; namely, the ulcer type, the obstructive type, the bleeding anemic type and the unclassified indigestive type.

The ulcer type is characterized by a distinct change in the familiar ulcer symptomatology. Where food and alkalies formerly gave relief, distress frequently results from them and comfort is obtained by fasting. The appetite fails and there is a feeling of nausea and food intolerance. Roentgenological observations show a failure of the lesion to heal or to decrease in size even under careful ulcer management; on the contrary, a gradual increase in the size and deformity of the lesion are noted. Such failure to obtain symptomatic relief and roentgenological improvement warrants exploration. All gastric ulcers that do not yield readily to treatment should be considered as malignant or potentially malignant and excision of the ulcer should be advised and insisted upon.

The primary obstructive type gives no history of former stomach distress and symptoms are largely absent until interference with the passage of the stomach contents produces distention, weight in the epigastrium, regurgitation, sour belching and ultimate vomiting. The lesion remains symptomless until it begins to encroach upon the pyloric outlet and interfere with gastric physiology by producing hyperperistalsis, hyperaccumulation of the stomach contents, dilation and fermentation.

The bleeding ulcerative type is usually the result of some long standing benign lesion in the body of the stomach which becomes malignant and produces no symptoms because of the silent area which it occupies, interfering in no way with gastric function but ultimately breaking down, producing a variable amount of bleeding and secondary anemia with an accompanying low grade toxemia from absorption of the products of decomposition. The lesion is usually large and far advanced before noticeable symptoms and signs are apparent; but fortunately at operation the growth is often still found to be confined to the stomach except perhaps some enlarged glands are observed which in

no way contraindicate operation. In approximately 50 per cent of cases these glands will be found to be inflammatory, secondary to the large sloughing necrotic mass in the stomach.

The indigestive type is characterized by no symptoms classical of a definite visceral involvement. It usually occurs as a gradual increasing indigestion, with days of remission followed by exacerbation but yielding permanently to no treatment or diet. In one who formerly has had no stomach distress but at middle life or later begins to have an indescribable indigestion which persists in spite of adequate diet and treatment, gastric cancer must be seriously considered. A distress that is characterized by a heavy weight, gas, sour belching, loss of appetite and an occasional vomiting of something eaten the day before is suggestive of gastric cancer. This type represents a primary carcinoma located in the prepyloric region which produces only slight interference with gastric function and causes no obstructive symptoms to any appreciable degree for some time after indigestive symptoms have been present. Fixation and glandular involvement in this type and in the obstructive type often occur extensively because of the prepyloric position which they occupy and the proximity to the pancreas and the profuseness of the glandular distribution in this locality.

The linitis plastica type (the leather bottle stomach) produces very much the same clinical manifestations as observed in the type just described. This form of stomach cancer is not frequent and is difficult to remove. The types and locations of the pathological lesions in the stomach largely determine the symptom-complex.

The benign ulcerative lesions vary in their transition from ulcer to malignancy in the character of gastric distress complained of. The obstructive lesions fortunately involve the gastric outlet early and produce symptoms of retention soon after the onset of the growth. The ulcerative masses in the body of the stomach, because of their location, advance to great size without manifestations other than a slow progressive secondary anemia. They are usually sharply demarcated and cauliflower in character and lend themselves easily to resection. However, marginal infiltration may be present due largely to inflammatory extension secondary to infection.

Malignancy is usually located in the distal two thirds of the stomach, the site most accessible to surgery and where symptoms are experienced at an earlier period than when

located well upon the body of the stomach. Welch's analysis of 1200 cases examined at autopsy shows 70 per cent in the distal two thirds, the region where ulcer and benign lesions are commonly observed. A relatively small per cent was found in the inaccessible region of the cardia.

The method of extension and metastasis is by the blood, lymphatics, continuity and mucosal transplants. Cells may be picked up and carried to the liver or more remote parts through the venous system; or more commonly in the adjacent lymph glands, along the lesser and greater curvature and in the pyloric region become involved and extend into remote regions inaccessible for surgery. Extension by continuity to the surrounding structures through inflammatory reactions or by direct serosal invasion occurs and offers difficulty in removal and a poor prognosis. Too often extension due to inflammation, such as a contracted indurated omentum is mistaken for malignant extension and an operable case is unnecessarily pronounced inoperable. When possible the fixed mass should be freed and resection carried out even in the presence of liver or pancreatic adhesions, or even liver invasion by new growth.

Mucosal transplants sometimes occur in the rectum or lower colon due to fragments of the original growth being broken off and carried along and implanted into the mucous membrane while waiting to be evacuated.

Warwick showed the tendency of the growth to remain confined to the stomach was greater than generally supposed and that many cases of the series examined at autopsy had missed an opportunity of cure by surgery. Out of 176 deaths caused by cancer of the stomach, 43 or 23 per cent had died from peritonitis due to a perforating lesion yet the growth was still confined to the stomach, no extension or metastasis being present. Also in this series only 43.4 per cent showed ulceration and of these 51 per cent showed perforation and in about one third of the cases the perforation was plugged. Emaciation was present in only 18 per cent of the cases.

Pain is characteristic of cancer but not of early cancer of the stomach. Unfortunately it comes with advancement of the disease. It usually comes after the taking of food and rarely does food afford relief from gastric pain or distress as it does in ulcerative lesions.

The preoperative preparation consists in overcoming dehydration by the administration of fluids and glucose, restoration of gastric tone by frequent stomach lavage and

blood transfusions when the hemoglobin is below 50 per cent. Horsley has recommended lavage of the stomach with $\frac{1}{2}$ to 1 per cent hydrochloric acid solution and its frequent administration as drinking fluid to reduce the bacterial flora in the stomach content when acidity is present.

Gastro-analysis is of little assistance in making a diagnosis. Free acid may be present in a moderately advanced case and surely is (if present before) in all early cases. If absent it denotes advanced pathology, usually with lactic acid and fermentation. An achylia is present in other diseases and has no diagnostic association with early gastric malignancy. Blood is found in the gastric contents and in the stool and is of suggestive diagnostic importance. Extensive hemorrhage is not characteristic but speaks in favor of ulcer rather than cancer. Persistent oozing with resulting anemia and cachexia occurs in lesions characterized by large growths which break down and ulcerate. It is found more frequently in those growths involving the body of the stomach and are secondary usually to preexisting benign lesions, as polypi, papillomata, adenomata and localized areas of hyperplastic mucosa. Saltzstein and Sandweiss found chronic persistent bleeding or oozing present in about the same proportion as ulceration, namely, 43.3 per cent. Warwick found marked bleeding in only 1.4 per cent and then only in advanced cases where the lesion had ulcerated into some vessel or where some necrotic mass had sloughed off leaving a bleeding surface.

A careful examination by a competent roentgenologist is the only way by which an early diagnosis of cancer of the stomach can be made; when in doubt after an exhaustive study by this method an exploration should be advised and insisted upon. A simple laparotomy will do no harm and many lives may be saved if carried out at an early period in indefinite cases of this character.

A gastro-enterostomy has no place in surgery of the stomach for cancer and should only rarely be performed. A wide resection should be done when possible if for no other purpose than to prolong life and to add to the comfort and general well being. The operability of cases now observed by men in this country is about 25 per cent, being considerably less than in Europe, but apparently we are less radical than abroad. Finsterer performs resections in 65 per cent of his cases. He states "without resection every patient will die and die in pain and misery therefore, I must resect whenever possible." Operative statistics from surgeons show the bene-

fits that may be obtained by radical operation even when extensive involvement is present.

The end results are always questionable as they are in the radical handling of cancer elsewhere. Balfour's group of a thousand cases showed 52 per cent and 19 per cent alive and well three years after operation of grades I and II which as compared with Steinthal's group of breast cancer after three years following operation 65 per cent to 80 per cent of grade I and 30 per cent or less of grade II. Darling believes that with earlier diagnosis and operation these can be made to approximate the results now obtained in breast cancer.

Gatewood reports 58 resections with mortality of 18, or 46.1 per cent lived three years or more; 39.5 per cent over five years and one patient alive over twelve years following operation.

Balfour reports 128 patients with cancer of the stomach alive ten years or more after resection. Balfour and Hargis report on 1000 cases operated upon at the clinic, 52 per cent alive three years after operation where no metastatic lymph nodes were found and only a three years' survival of 19 per cent where the nodes were involved.

Finsterer reports 329 resections with 6.1 per cent mortality on uncomplicated cases and 129 resections with pancreas, liver or colon involvement with 41 per cent mortality and 37 per cent of the combined group alive five years after operation. Twenty per cent of his simple, uncomplicated resections were alive ten years after operation.

Finsterer also reports 199 resections, stating sixty cases were malignancy upon ulcer, 139 primary malignancy. Longevity after operation was 20.7 per cent of ulcer group lived five years or more and 35.8 per cent of primary group lived five years or more. The primary group showed a more favorable prognosis.

With these statistics in mind, one cannot fail to be impressed by the courage displayed and the results obtained in such an unfavorable field and one feels that he has missed many opportunities to help and make more comfortable and possibly obtain a cure on some occasions where a pessimistic attitude had prevented him from giving the patient a chance.

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BIBLIOGRAPHY

- Gray and Balfour: Cancer of the Stomach, *Am. J. Cancer* (October) 1934.
Horsley, J. S.: Peptic Ulcer and Cancer of Stomach, *J. A. M. A.* 1929.
Miller, Eliason, and Wright: Carcinoma Degeneration of Polypi Stomach, *Arch. Int. Med.* (November) 1930.
Warwick, Margaret: Analysis 176 Cases of Carcinoma Stomach Submitted to Autopsy, *Am. J. Surg.* (August) 1928.
Saltzstein and Sandweiss: The Problem of Cancer of the Stomach, *Arch. Surg.* (July) 1930.

THE ADRENAL HYPERCORTICAL AND HYPERMEDULLARY SYNDROMES

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The adrenal glands, or suprarenal bodies, are two small triangular structures yellowish in color which fit snugly one upon the upper pole of each kidney. They were discovered and described in 1563 by Eustachi, the celebrated Italian anatomist who made other anatomical discoveries among which is the eustachian tube which bears his name.

The importance of the adrenal glands was not realized for nearly three hundred years after their discovery, until Addison in 1885 showed their relation to the disease known by his name when he published his clinical observations under the title "The Constitutional and Local Effects of the Disease of the Suprarenal Capsules."

The adrenals in mammals consist of two separate types of tissue, known as the cortex or interrenal tissue and the medulla or chromophil tissue. Although these tissues are anatomically united they are morphologically and embryologically distinct in origin, structure and function. In some fish no adrenal glands exist and the two types of tissue are separate and distinct of each other. Accessory cortical tissue may be found in varying amounts and positions, frequently between the testes and epididymis in the male and in the broad ligaments of the female in the region of the adrenal glands and in the retroperitoneal space.

In mammals the cortical tissue is developed from the mesothelium of the Wolffian ridge in common with the ovaries and testes while the medullary tissue is of ectodermal origin, arising from the neural crest in conjunction with the nerve cells of the sympathetic ganglia. Accessory chromophil tissue is present in the sympathetic ganglia, in front of the aorta and in the carotid body.

HISTOLOGY

The cells of the cortex although mesoblastic in origin are epithelial in type. They are polyhedral in shape and lie in three layers or zones and present different forms and arrangements at different levels without any sharp line of demarcation. The outer layer is known as the zona glomerulosa, the middle one as the zona fasciculata and the inner as the zona reticularis. The cells have prominent nuclei and contain

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lipoid globules in their cytoplasm which impart the yellow color to the cortex.

The medulla is made up chiefly of a network of cords of irregularly shaped cells arranged in relation to large vascular spaces. These cells contain granules which stain well with nuclear dyes. Henle in 1865 discovered that the cells of the medulla stained brown or yellowish brown with chromic acid and its salts. Because of this characteristic staining quality they were called chromophil or chromaffin cells. Stilling found that in the sympathetic ganglia and the carotid gland there were cells which had this characteristic quality of staining in a similar manner; therefore this aggregation of tissue is known as the chromaffin system.

The adrenal glands are richly supplied with blood, the richest of all organs of the body. Six times its own weight of blood passes through each gland every minute. These glands are also abundantly supplied with sympathetic nerve filaments which form a thick network especially in the medulla where they are placed in relation to chromaffin cells that correspond to secondary sympathetic neurons. The sympathetic nerves supplied to the adrenals are preganglionic fibers, this being the only instance in the sympathetic system where preganglionic fibers pass directly to the structure innervated without the interposition of postganglionic fibers. This allows a rapid outpouring of adrenalin which in turn increases the sensitiveness of response to the sympathetics.

About the time that Addison published his observations of a condition which he attributed to disease of the adrenals Brown-Sequard (1865) reported that the removal of both adrenal glands in animals caused them to die within twenty-four to forty-eight hours. This has been confirmed by a great number of workers. The question then arose as to what part of the gland was necessary to maintain life. Through experimentation by a large number of workers it was found that complete extirpation or destruction of the medulla of both glands did not seem to cause any ill effects and the animal continued to live. However, it must be remembered that the adrenals do not contain the total amount of chromaffin tissue of the body, but that the sympathetic ganglia and the carotid body also contain chromaffin cells which may be of sufficient amount to maintain medullary function if the functioning of such tissue is vital to life.

The proof we have at present of the indispensability of the adrenal cortex to preserve life rests upon the finding that complete removal of both cortices results in death within a comparatively short period of time, and that if a small

fraction of either cortex (one fourth to one eighth) is left intact the animal does not die.

Stewart and Rogoff¹ reported that they had prolonged the life expectancy of adrenalectomized dogs to as much as sixty-three days by the use of a rather crude extract of adrenal cortex. Coincident with the announcement of Stewart and Rogoff, Hartman, et al, reported the preparation of an extract which prolonged the survival period of cats from six to twenty-one days. They named the hormone "cortin." Subsequently, Swingle and Pfiffner² succeeded in purifying the extracts so that these were less toxic and the authors were finally able to remove epinephrine completely. Grollman and Firor³ in 1933 described a method for cortical extraction that is more simple and gives a clear, colorless, odorless and nontoxic extract.

Recently Kendall⁴ successfully maintained bilaterally adrenalectomized dogs with his pure crystalline product. Three dogs have now survived eight, six and two weeks, respectively. The empirical formula is $C_{20}H_{30}O_5$.

Harrop, Pfiffner, Weinstein and Swingle⁵ define a dog unit of cortin as the minimum daily kilogram dose necessary to maintain normal physiological conditions in the bi-adrenalectomized dog previously held on a maintenance dose for a period of ten days. The two criteria of normal physiological conditions are maintenance of body weight and blood level of non-protein nitrogen.

SYMPTOMS OF ADRENAL CORTICAL HYPERFUNCTION

Attempts have been made to determine the clinical syndrome that will result in animals following excessive and continued dosages of adrenal cortical hormone. Swingle and Pfiffner⁶ did not detect any toxic reactions or over-dosage phenomena following excessive and continued dosages of adrenal cortical hormone. Nice and Shiffer⁷ produced early sex development in immature female white rats by multiple adrenal gland transplants. Britton⁸ and his co-workers produced sexual precocity in rats with cortical extract. They found corpora lutea present with hypertrophy of the uterus in rats 28 days of age after injection periods of two weeks. Hypertrophy of the anterior pituitary was present and they thought it possible that the gonadal effect might possibly have resulted from this source.

It is recognized that a condition exists in the human, in association with adrenal cortex hyperplasia and tumors, which is characterized by sexual anomalies discovered at birth, sexual precocity known as pubertas precox, reversions to the male bodily configuration by pubescent and

adolescent girls, amenorrhea, hirsutism, obesity of the face, neck and trunk, hypertension, hyperglycemia and cutaneous changes, such as coarseness of texture and acneform eruptions. It is noticeable that the earlier the cortical abnormality develops the more marked are the sexual and physical changes found in the individual; but this may be explained by the plasticity of the developmental period.

The description of bearded women with masculine voices and bodies resembling the male has been given by writers from the time of Hippocrates. Bullock and Sequeira⁹ in 1905 reported twelve cases of tumor of the suprarenal gland with sexual changes, and pointed out that the tumor develops in the cortex.

Our present knowledge concerning clinical conditions associated with hyperfunction of the adrenal cortex has been derived from the study of cases having these anomalies in the presence of hyperplasia of the cortex or tumors containing that tissue. Cortical tumors are usually adenomata or carcinomata. That adenomatous tumors of the adrenal cortex will produce the clinical syndrome described is further substantiated by the reversion of the patient's condition toward normal after removal of the adenoma, as occurred in the cases of Holmes, of Collett, of Walters, Wilder and Kipler,¹⁰ and others who have reported similar cases. That hyperplasia of the adrenal cortex can cause this syndrome was shown by Walters, et al, in three proved cases.

There is some question as to the relation of the adrenal cortical syndrome and pituitary basophilism. Adrenal cortical tumors are occasionally found in conjunction with basophilic pituitary tumors. However, some cases seen at autopsy, in which the adrenals and pituitary have been carefully searched histopathologically, have revealed adrenal adenomata and normal pituitary glands, and vice versa. It may be well to advise caution before operation. When the signs and symptoms indicate adrenal cortical lesions, it is well to remember that the possibility of anterior pituitary basophilism should first be eliminated.

Apert,¹¹ 1910, collected thirty-five cases at necropsy in persons of all ages and demonstrated conclusively that the different types by which the condition was manifest depended grossly upon the age of onset of the cortical disturbance. On this basis Apert classified the manifestations of hyperepinephry into five developmental and age periods; namely, (1) embryonal; (2) fetal; (3) prepuberal; (4) maturity and (5) menopausal.

A more simple classification which would divide the condition as occurring in three periods,

which obviously are not distinct from each other but which show definite gradations with age is as follows:

Type 1. Cortical disturbance occurring in fetal and early postnatal life, producing pseudohermaphroditism. The external genitalia do not show clear-cut male or female differentiation. There are all gradations of development and it may be extremely difficult to know the true sex of the individual.

Type 2. Prepuberal and puberal cortical hyperfunction (hyperplasia or tumor) producing *pubertas precox* with accentuation of the male characteristics in the male and with a tendency toward masculinization in the female, characterized by enlarged clitoris, hypertrichosis, masculine voice, development of male bodily configuration and absence of menstruation.

Type 3. Adult cortical hyperfunction (hyperplasia or adrenal neoplasm) causing masculine hypertrichosis, amenorrhea and frequently associated with obesity.

ADRENAL MEDULLARY HYPERFUNCTION

Hyperfunction of the adrenal medulla should produce symptoms comparable to those that result from stimulation of the sympathetic nervous system. A condition exists in some individuals that gives the appearance of an atypical hyperthyroidism which may be attributable to hypermedullary adrenalism. It is characterized by subjective nervousness and a sensation of generalized tremulousness which may at times be accompanied by a fine or coarse tremor of the fingers. The palms are moist and there is a tendency to perspire mildly upon effort. The individual gives the impression of being on tension, expending excess energy in every action. There may be increased blood pressure simulating essential hypertension with moderate acceleration of the pulse. Theoretically, there should be a decreased sugar tolerance. The basal metabolism is usually within normal limits.

Essential Hypertension.—A definite clinical entity exists known as "essential vascular hypertension," characterized by abnormally increased blood pressure in which no primary condition (until perhaps recently) has been found to account for it. Alvarez¹² found pressures of over 140 mm. Hg. in 22 per cent of healthy college men. Physical examination reveals the hypertension but no abnormality to account for it. The onset is insidious and the course persistent, with a gradual increase in blood pressure and finally the appearance of symptoms, among which may be vertigo, headache, epistaxis, tinnitus, tachycardia, palpitation and dyspnea upon moderate effort, anginoid pains, nervousness, restlessness, irritability, easy fatigue, disturbed sleep, etc. Later the long continued hypertension produces serious cardiovascular changes.

In recent years quite a number of cases of hypertension have been reported in which pheochrom (staining dark with chromium salts) tumors and hyperplasia have been found in the

adrenal medullary tissue. Medullary tumors may be of three types, viz.: (1) Neuroblastoma from the primitive neuroblasts; (2) ganglioneuroma from the mature ganglion cells, and (3) chromaffinoma, or pheochromocytoma from the chromaffin cells. Although rare, the first type is the most common, and being primitive in type is highly malignant. The last two types arise from adult cells and are not malignant.

Galata¹³ removed one complete suprarenal gland from a woman who had a blood pressure of 300 mm. Hg. after all medicinal measures had failed to give relief. Within three days following the operation the blood pressure fell to 210 mm. Hg. and remained more or less stable around 200 mm. with the disappearance of most of the associated symptoms. Six months later a report showed that this improvement had been maintained.

In a review of the literature, Eisenberg and Wallerstein¹⁴ found fifty-three reported cases of pheochrome tumors one half of which were accompanied by hypertension. After removal of these tumors the hypertensive attacks and all associated symptoms disappeared abruptly. Mayo¹⁵ in 1930, Shipley¹⁶ in 1929 and Porter¹⁷ in 1930, each reported a case in which a diagnosis of pheochrome tumor was made during life. Removal of these tumors gave the patients relief from their symptoms.

Philpot¹⁸ in 1909 studied twenty-seven cases of hypertension and reported that the suprarenal medulla was enlarged in nearly every case. Goldziehr¹⁹ in 1932 reported four cases of nodular hyperplasia of the adrenal medulla with hypertension and arteriosclerosis.

DeCourcy, DeCourcy and Thuss²⁰ explored both suprarenals in six patients having essential hypertension (in two of whom pheochrome tumors were found with medullary hyperplasia) with the idea that the most logical way to reduce essential hypertension is to reduce the amount of superfluous secreting tissue of the suprarenals. They recommend partial suprarenalectomy, done in two stages, with removal of about two thirds of each gland, which tissue includes both medulla and cortex, taken from the part of the organ remote from the entrance of the blood vessels.

Since tumors or hyperplasia of secreting cells of the thyroid, parathyroids and islet cells of the pancreas have been proved to produce hyperfunction in many instances, it is reasonable to suppose that a comparable condition of the suprarenal medullary tissue could and would cause its specific effects of which hypertension seems to be the most prominent. Reported cases proved by operation confirm this assumption.

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BIBLIOGRAPHY

1. Stewart, G. N., and Rogoff, J. M.: Studies in Adrenal Insufficiency in Dogs, *Science* **66**:327, 1927; *Am. J. Physiol.* **84**:660, 1928.
2. Swingle, W. W., and Pfiffner, J. J.: An Aqueous Extract of the Suprarenal Cortex Which Maintains the Life of Bilaterally Adrenalectomized Cats, *Science* **71**:321 (March 21) 1930.
3. Grollman, A., and Firor, W. M.: Studies on Adrenal; Preparation of Active Extract of Hormone of Adrenal Cortex, *J. Biol. Chem.* **100**:429, 1933.
4. Discussion by Russell Wilder: Transplantation of Adrenal Cortex, *Ann. Surg.* **100**:699 (October) 1934.
5. Harrop, G. A.; Pfiffner, J. J.; Weinstein, A., and Swingle, W. W.: Biological Method of Assay of Adrenal Cortical Hormone, *Proc. Soc. Exper. Biol. & Med.* **29**:449, 1932.
6. Swingle, W. W., and Pfiffner, J. J.: Adrenal Cortical Hormone, *Medicine* **11**:371, 1932.
7. Nice, L. B., and Shiffer, A. L.: Multiple Adrenal Transplants and Premature Sex Development in Female White Rats, *Endocrinology* **15**:3 (May-June) 1931.
8. Britton, S. W., et al: Induction of Precocious Sexual Maturity by Cortico-Adrenal Extract, *Am. J. Physiol.* **99**:133, 1931; Britton, S. W., et al: Some Effects of Cortico-Adrenal Extract and Other Substances on Adrenalectomized Animals, *Am. J. Physiol.* **99**:15, 1931.
9. Bulloch and Sequeira: On the Relation of the Suprarenal Capsules to the Sexual Organs, *Path. Soc. London*, 1905.
10. Walters, Waltman; Wilder, Russell, and Kepler, Edwin J.: The Suprarenal Cortical Syndrome With Presentation of Ten Cases, *Ann. Surg.* **100**:4 (October) 1934.
11. Apert, E.: Dystrophies en relation avec des lésions de capsules surrenales, hirsutisme et progeria, *Bull. Soc. de pediat. de Paris* **12**:501, 1910.
12. Alvarez, W. C.: *Arch. Int. Med.* **32**:17, 1923.
13. Galata, G.: De un caso d'ipertensione climaterica colla surrenectomia unilaterale, *Riforma med.* **45**:1449 (Oct. 26) 1929.
14. Eisenberg, A. A., and Wallerstein, Harry: Pheochromocytoma of Suprarenal Medulla, *Arch. Path.* **14**:818 (December) 1932.
15. Mayo, C. H.: Paroxysmal Hypertension With Tumor of Retroperitoneal Nerve, *J. A. M. A.* **89**:1049 (Sept. 24) 1927.
16. Shipley, A. M.: Paroxysmal Hypertension Associated With Tumor of Suprarenal, *Ann. Surg.* **90**:742 (October) 1929.
17. Porter, M. F., and Porter, M. F., Jr.: Report of Case of Paroxysmal Hypertension Cured by Removal of Adrenal Tumor, *Surg. Gynec. & Obst.* **50**:160 (January) 1930.
18. Philpot, A.: An Investigation of the Histological Conditions of the Suprarenal Glands in Conditions Associated With High Blood Pressure, *Quart. J. Med.* **3**:34, 1909-10.
19. Goldziehr, M. A.: Nodular Hyperplasia of Adrenal Medulla in Hypertension, *Endocrinology* **16**:1 (Jan.-Feb.) 1932.
20. DeCourcy, J. L.; DeCourcy, C., and Thuss, Otto: Subtotal Bilateral Suprarenalectomy for Hypersuprarenalism (Essential Hypertension), *J. A. M. A.* **102**:14 (April 7) 1934.

CYANOSIS OF THE NEW-BORN

E. A. Morgan and Alan Brown, Toronto (Journal A. M. A., Oct. 5, 1935), divide and list the more commonly accepted causes of cyanosis of the new-born into those due to accidents of labor and those due to pathologic conditions of the infant. The causes due to accidents of labor are aspiration of mucus, atelectasis, prolapsed cord or cord around the neck, early separation of the placenta and low implantations of the placenta, prolonged difficult labor, breech presentation with difficulty in delivering the aftercoming head, severe circulatory or toxic conditions of the mother, cerebral edema and intracranial hemorrhage (traumatic), and the causes due to pathologic conditions of the infant are prematurity, persistent thymus, diaphragmatic hernia, tracheo-esophageal fistula, congenital cardiac malformation, tongue swallowing, pneumonia of the new-born, tetany of the new-born, sepsis of the new-born and intracranial hemorrhage (spontaneous). In the list of causes of cyanosis of the new-born, the authors believe that aspiration of mucus with resultant impaired ventilation should be given first place. The careful removal of pharyngeal secretions before the child's first inspiratory effort will materially reduce the incidence of cyanosis. Cerebral edema is a distinct clinical entity and an important cause of cyanosis.

PULMONARY TUBERCULOSIS ASSOCIATED WITH VALVU- LAR HEART LESIONS

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It has frequently been noted that there is an apparent relationship between certain valvular abnormalities of the heart and susceptibility or relative immunity to pulmonary tuberculosis.

Lois¹ in 1826 and Farre and Travers¹ in 1850 called attention to the frequent coincidence of pulmonary tuberculosis and pulmonary stenosis, the former apparently being caused by the pronounced anemia in pulmonary stenosis. The course of these cases was invariably fatal.

Rokitansky in 1855 first handed down the dictum that tuberculosis of the lung and heart disease did not occur together. He made this statement on the ground that chronic valvular heart disease especially mitral stenosis was incompatible with tuberculosis. He explains this on the basis that an increased blood supply to the lung as in chronic passive congestion would mitigate against any invasion of the tubercle bacillus.

This observation of the infrequency of tuberculosis in patients with cardiac insufficiency and chronic passive congestion of the lung was utilized by Bier who produced a venous hyperemia of the extremities by a ligature applied above the lesions in the treatment of tuberculous joints.

Kaufman² states that individuals with cardiac insufficiency and pulmonary passive congestion rarely have tuberculosis of the lung, but stresses the point that tuberculosis is seen in lungs vicariously supplied by bronchial-arterial blood.

As to the relative frequency of pulmonary hemorrhage in heart disease and pulmonary tuberculosis the latter still remains the major cause of hemoptysis and accordingly tuberculosis should not be ruled out simply because the patient has a known heart condition. J. B. Hawes,³ in commenting on the attempts made to prove that frank pulmonary hemorrhages were as common in mitral stenosis as in tuberculosis, states, "They have proved nothing and have done only harm. I will continue to maintain that in well over 95 per cent of cases of hemorrhages from lungs of at least a teaspoonful means tuberculosis of the lung and nothing else."

Recent observations have shown that the dictum of Rokitansky is untenable and that association of phthisis with primary heart disease is probably more common than is usually suspected. Lawrason Brown,³ out of 7115 autopsies on tuberculosis patients found 0.9 per cent of valvular heart disease; Norris,³ out of 8154 autopsies found 3.5 per cent; Anders³ reports 6 cases of mitral disease with pulmonary tuberculosis, 4 of mitral insufficiency and 2 of mitral stenosis. Bronfin and Simon,⁴ on the clinical examination of 2100 tuberculosis patients found approximately 6 per cent with valvular lesions, chiefly mitral insufficiency and stenosis, with varying degrees of cardiac symptoms. The views of Rokitansky however are held by many competent observers.

Bearing upon the above discussion is the statement of G. E. Ehrenburg¹ that the beneficial effects of artificial pneumothorax are due not to rest but to a large extent to the changes in the pulmonary circulation. This view is also held by Sauerbruck. Cloetta⁴ has proved this theory by plethysmography of the lung, by chemical analysis of the blood and by comparing the microscopic slides of collapsed and distended lungs. The autopsy reports of Tarantola⁴ have shown marked hyperemia in the collapsed lung.

Cornet³ states that stasis hyperemia is favorable for the healing of pulmonary tuberculosis by neutralizing the products of metabolism of the bacteria, destroying the bacteria and stimulating the formation of connective tissue which encapsulates the foci. Apparently, then, hyperemia protects, stimulates a healing process and offers a favorable prognosis. In anemia the converse is true.

It is in relation to the above discussion that the following five cases of pulmonary tuberculosis are presented; three of rheumatic heart disease with mitral involvement and two with congenital heart disease.

REPORT OF CASES

Case 1. E. G., white male, aged 32. History dates back to the age of 6 when he had an attack of severe rheumatic fever and was in the hospital for four months with swollen, painful joints, high fever and at one time delirium. Several months following his dismissal from the hospital he had severe hemoptysis and was told by his physician that he had "leakage of the heart." He showed no blood thereafter until 1925. Since the above attack he has been decompensated several times, the worst in 1926 when he was confined to bed with swollen ankles, marked dyspnea and nonproductive cough. Has had digitalis on several occasions since 1928. His last decompensation was in 1932. In 1925 he began to notice blood streaked sputum which has occurred at irregular intervals up to the present. In 1931 he developed a large abscess over the sternum which was incised and continued to drain for several months.

From the Kansas City Tuberculosis Hospital.
Presented before the Jackson County Medical Society,
April 30, 1935.

This has healed and broken open several times but has now remained closed a year and a half. In 1933 he began to lose weight, losing 25 pounds in six months. Cough became more frequent associated with chest pains. In August, 1933, after several small pulmonary hemorrhages he had a severe one of one quart. On admission to the Kansas City Tuberculosis Hospital he gave the further information that his father has a tuberculous osteomyelitis of one of the bones of his foot. No other known contact to tuberculosis. No history of venereal disease.

Physical examination revealed a male, about 30 years of age, of asthenic build, thin, weak and with slight cyanosis of lips and finger nails. Nose shows some slight mucous membrane congestion. Teeth show some caries. Pharynx injected. Chest shows some lagging on right; some pectoral atrophy of both sides. Tactile and vocal fremitus increased at right apex with frequent crepitant rales at this area. Breath sounds normal. Left chest negative. Slight impairment of resonance over right chest, posteriorly and anteriorly. The heart showed a distinct visible apex beat in the sixth left interspace, six centimeters from the mid-sternal line. The area of cardiac dullness extended one centimeter to right and six centimeters to left of sternum in the sixth left interspace. Heart sounds of poor quality but regular; rate 90. There was a short systolic and loud harsh diastolic heart murmur heard best in the fifth left interspace and poorly transmitted into the axilla. Blood pressure 110/60, pulse rate 90, regular. Abdomen negative except for palpable liver one finger's breadth below the costal margin in the midclavicular line; not tender. Extremities: slight pitting edema of ankles. Temperature 100; respiration 20. Roentgen ray report, "Right upper third reveals irregular mottling and areas of decreased density suggestive of cavity formation. Linear striations in the left infraclavicular region." Measurements of heart (7 ft. plate) .49 of chest diameter. Blood count 4,100,000 R. B. C. 70 per cent hemoglobin. Wassermann and Kahn negative. Urinalysis negative. Sputum examination positive for tubercle bacilli. Tuberculin test, 1 plus to first test dose P. P. D. Sedimentation index 24 in 60 minutes. Electrocardiogram taken with the patient on his back, right and left sides showed enough change in the ventricular complexes to rule out adhesive pericarditis. A simple auricular tachycardia was present. Electrocardiograms were otherwise normal.

Visualization of the esophagus with barium failed to show any encroachment upon the retrocardiac space either fluoroscopic or roentgen ray examination. Diagnosis: Rheumatic heart disease with mitral stenosis and regurgitation and pulmonary tuberculosis. This patient was seen in consultation by Dr. George C. Lee who concurred in the diagnosis. Patient has been under pneumothorax treatment on the right side for twenty months with a complete collapse of the right lung and now presents an arrested case although his cardiac condition occasionally needs attention.

Case 2. L. C., Negro, male, aged 24. History dates back to August, 1933, when left ankle became swollen tender and painful. This lasted for one week and gradually subsided to be followed immediately by a similar condition in his right ankle of equal duration. Patient entered Bell Memorial Hospital August 20, 1933, ankles having subsided but his right wrist having become markedly tender and swollen. He was seen by Dr. M. Ginsberg who diagnosed the condition as acute rheumatic fever with rheumatic endocarditis affecting the mitral valve and chronic tonsillitis. Patient was placed on the usual salicylate therapy with complete disappearance of joint symptoms. In October, 1933, tonsillectomy was performed under local anesthesia following which the patient was discharged

from the hospital. However, his throat apparently refused to heal and thirty days later was still quite tender. During this time he developed a chronic non-productive cough, dyspnea on exertion, night sweats, afternoon fever running up to 100.4 F. and a loss of about ten pounds in weight. He returned to Bell Memorial Hospital where Dr. Ginsberg again saw him making a diagnosis of pulmonary tuberculosis. On admission to the Kansas City Tuberculosis Hospital, he gave the additional information that two of his sisters had died of pulmonary tuberculosis in the years of 1931 and 1932. He admitted a gonorrheal urethritis a few years ago. His detailed history was otherwise negative.

Physical examination revealed a colored male, 25 years of age, of asthenic build. Eyes reacted to light. The patient showed bilateral congenital colombla with a slight internal strabismus of left eye. Mild degree of dental caries. Tonsils were out. Throat healed. There was a slight cervical adenopathy. Chest showed some respiratory lagging on the right. Dullness in the right apex and throughout right chest. Resonance normal on the left. Numerous crepitant rales throughout the right lung field, anteriorly and posteriorly. Breath sounds faint at the base. Occasional rales left midlung field. The heart was slightly displaced to the left but normal in size. Rate was 120. When the rate slowed down to about 100 as the result of bed rest there was a systolic thrill at the apex with a systolic and a diastolic murmur best heard in the left fifth interspace and poorly transmitted to the axilla. Blood pressure 124/86. Abdomen negative, liver edge not palpable. Mucous membrane normal. Neuromuscular negative. Extremities normal; no edema. Rectal, hemorrhoids; prostate enlarged and tender. There was a posterior anal fissure. Temperature ranged from 98.6 to 101. Pulse 100 to 120. Roentgen ray report: "The lower right chest presents a homogeneous density due probably to fluid. The upper field presents a coarse mottling radiating from the hilum. The left presents parenchymal in the midzone and outer zone extending from the level of the seventh to the tenth vertebrae. The heart is displaced to the left." Visualization of the esophagus with barium failed to show any encroachment upon the retrocardiac space, either on the fluoroscopic or roentgen ray examination. Roentgen ray of heart showed its diameter to be .46. Laboratory: Sputum, three to nine ounces per day, positive for tubercle bacilli. Smears from anal fissure positive for tubercle bacilli. Tuberculin test, one plus to the first test dose P. P. D. Wassermann and Kahn negative. Urine shows occasional red blood cells and white blood cells. Sedimentation rate for 60 minutes was 28. Electrocardiogram showed a simple tachycardia and left axis deviation but was otherwise normal. Diagnosis: pulmonary tuberculosis associated with rheumatic heart disease with mitral stenosis and regurgitation. The patient was seen in consultation by Dr. Morris Ginsberg who again observed the above findings and concurred in the diagnoses. This patient expired on Jan. 6, 1935. Permission for autopsy was refused.

Case 3. J. E., white, male, aged 33. Rheumatic fever at the age of 6 and has known since childhood that he had heart disease. He had noticed frequent chest pains for three years preceding his admission to the hospital. During the year preceding his admission he tired easily, became progressively weaker and lost 30 pounds in weight. Slight productive cough and one ounce of sputum per twenty-four hours. Night sweats and a hoarseness of six months' duration. Severe colds during the last winter. Always had dyspnea on exertion accompanied by frequent palpitation. Venereal history negative for gonorrhea.

Physical examination revealed a well nourished

white male about 30 years of age of asthenic build. Positive findings: Spur on nasal septum. Dental caries. Tonsils small, pillars red and pharynx showed some postnasal discharge. The epiglottis and aryepiglottic folds pale and edematous. Chest revealed narrowing of the interspaces on the left. Percussion note resonant throughout both lung fields. Breath sounds roughened in both apices. Musical and posttussis crepitant rales at the right apex. Breath sounds normal throughout the remainder of lung field. The heart showed a visible impulse in the sixth left interspace seven centimeters from the midsternal line. Heart dullness extended from the right sternal border to a point seven centimeters from the midsternal line into the sixth left interspace. There was a loud blowing systolic murmur over the mitral area and well transmitted into the axilla with sharp second sound. Rate 86, regular. Liver edge not palpable. The roentgen ray interpretation: "Both lung fields, principally the lower third, reveal regular shaggy linear striations. Two ring-shaped shadows in the right. Both diaphragmatic shadows appear normal. The left ventricular convexity is slightly exaggerated. Diagnosis: Bilateral tuberculosis, proliferative stage with cavity formation and hypertrophy of left ventricle." Laboratory: Sputum positive for tubercle bacilli. Wassermann and Kahn negative. Blood chemistry normal. Red blood cells, 3,500,000, 60 per cent hemoglobin. Urine negative. Sedimentation rate, 21. Diagnosis: Rheumatic heart disease with mitral regurgitation and pulmonary tuberculosis. This patient was seen in consultation by Dr. George C. Lee who concurred in the diagnosis.

This patient subsequently left the hospital against advice and we have been unable to reestablish contact with him.

Case 4. White, female, aged 20. Admitted to hospital September 20, 1934. She had been told she had heart trouble ever since childhood. She had always had dyspnea on slight exertion. Has had frequent edema of ankles. Has apparently been decompensated several times. Has had digitalis prescribed frequently, the last being one year ago. She had to quit school at the age of eight because of the dyspnea produced by the walk to school. During the last year she has had a rather severe cough with only small amount of sputum. In June, 1934, she coughed up about one ounce of blood and has had several smaller hemorrhages since. She has had frequent night sweats in the last year and has felt much weaker than previously. No loss of weight. Catamenia somewhat irregular, every twenty-eight to thirty days, duration four to fourteen days. Slight metrorrhagia. Moderate leukorrhea. Menstruating at time of admission. History by systems otherwise negative.

Past Medical History: Pneumonia of the left lung six years ago. Influenza twelve times the last ten years. During the last five years she has been confined to bed each winter with what she calls "muscular rheumatism." The joints especially the knees, ankles and shoulders become painful but not red. Pain does not shift from joint to joint. No other illness. No operations. Social history negative. Family history negative for tuberculosis or heart disease.

Physical examination revealed a well developed and well nourished white female about 20 years of age. Skin, nails and mucous membranes showed marked cyanosis. There was evident dyspnea on exertion. Slight enlargement of the lymph nodes in the posterior cervical chain. Chest, expansion free and equal. Note impaired at the left apex but resonant throughout rest of chest. Bronchovesicular breathing at left apex, vesicular in rest of chest. On the right anteriorly are a considerable number of posttussis rales in the midlung

field. Posteriorly on the right there were crepitant posttussis rales from the apex to the middle of the scapula. On the left occasional rales in the apex. No clinical signs of cavitation. Heart: Border slightly increased to the left. Sounds loud and rapid but regular. Loud systolic murmur at the mitral and pulmonary areas and transmitted into the vessels of the left side of the neck. Murmur not affected by position or respiration. Vessels: Soft, rate 120. Abdomen: Soft. Liver edge palpable one finger's breadth below costal margin in midclavicular line. Spleen and kidneys not palpable. Ascending and descending colon palpable and slightly tender, especially in left lower quadrant. Extremities: Marked clubbing and cyanosis of fingers and toes. Slight edema of ankles. Neuromuscular negative. Pelvic: Cervical discharge, cyanosis of mucous membranes; otherwise normal. Temperature was 98 F.; pulse 120; respiration 24. Roentgen ray report: "On the left side opposite the second interspace there is a thin-walled annular shadow which is suggestive of cavitation. In the midlung field on the right opposite the second and third interspaces there are several large areas of decreased density suggestive of confluent cavities. There is considerable fibrosis extending into the first and second interspaces on the left and into the midlung field on the right." Urinalysis showed albumin 3 and many white blood cells and an occasional red blood cell. Red blood count was 7,420,000 for peripheral capillary blood, and 7,880,000 for venous blood with 14,600 white blood cells, 71 per cent polymorphonuclear. Hemoglobin 118 per cent (Dare method). Reticulocyte count was 1 per cent. Size of red cells showed the largest to be 9.26 microns, the smallest 5.03 and the average 7.13. Volume of erythrocytes equal 175 per cent (method of Haden-Sanford) and volume index equal 1.09 (Kolmer and Boerner). Blood sugar was 98 mg.; N. P. N. was 41.6 mg.; creatinine 1.5 mg. Carbon dioxide combining power was 52 volumes per cent. B. M. R. was 4.3 per cent. Wassermann and Kahn were negative. Vital capacity was 2200 cc. Sputum measured about three ounces per day and showed many tubercle bacilli. Tuberculin test was negative to both first and second doses, tuberculin P. P. D. Sedimentation time was 60 minutes with an index of 8. Electrocardiogram showed a sinus tachycardia, inverted and diphasic T wave in leads 2 and 3 and relatively high P waves in all leads. A recent electrocardiogram also showed a first degree heart block. Diagnosis, congenital heart disease with pulmonary tuberculosis, far advanced, bilateral. This patient was seen in consultation by Dr. D. C. Peete who concurred in the findings and made the diagnosis of pulmonary tuberculosis and tetralogy of Fallot (pulmonic stenosis, interventricular defect, right-sided hypertrophy, dextroposition of aorta).

Case 5. J. E., white, male, aged 18. Patient entered the Kansas City Tuberculosis Hospital on March 11, 1935, complaining of shortness of breath. His history dates back to the age of 9 when he was refused swimming lessons because of heart lesion discovered by the examining physician. He had always been conscious of dyspnea on exertion, especially in the winter time. This dyspnea increased slowly year by year. During the last five years he has been bothered by severe colds and almost continuous severe cough. On March 23, 1934, after a severe coughing spell he coughed up about a teaspoonful of bright red blood. The next day he entered the outpatient clinic at Bell Memorial Hospital where he was seen by Dr. Don C. Peete and observed for a period of ten months. At one time while under observation he developed a spontaneous pneumothorax of the left lung which, however disappeared in a short time.

On admission to the Kansas City Tuberculosis Hos-

pital he gave the additional history of a now chronic nonproductive cough, but no fever, chills, night sweats, or edema. No hemoptysis except on the one occasion mentioned. No loss of weight. History by systems was otherwise negative.

Past Medical History: Chicken pox and measles in infancy, whooping cough at age of 2. Knee swollen 2 months at age of 1 year. No tonsillitis, scarlet fever, chorea or diphtheria.

Physical examination revealed a white male thin and physically underdeveloped for his age. Weight, 88 lbs. The head, eyes, ears and nose were normal. Teeth in good condition. Tonsils small. Larynx normal. Neck showed no abnormalities.

Chest was thin and flat. There was a slight respiratory lag on the right. No pectoral atrophy. Impaired resonance in right apex and infraclavicular areas anteriorly and from apex to midlung field posteriorly. Rest of lung field was resonant. There were numerous crepitant posttussis rales throughout the right chest anteriorly and posteriorly, at the left apex anteriorly and posteriorly from the apex to the midlung field. There was cavernous breathing in the right interscapular region.

The heart showed no visible or palpable apex beat. Borders were normal to percussion extending from the right sternal border to the left midclavicular line. A thrill at the pulmonic area. Heart sounds loud and regular. Two harsh systolic murmurs present, one in the second left interspace transmitted up toward vessels in the neck and another in the fourth left interspace increased by exercise but not transmitted. Vessels were soft. Rate 70, regular. Blood pressure 110/72. Abdomen: Liver edge palpable 2 fingers' breadth below costal margin in midclavicular line. Spleen not palpable. Extremities: Slight edema of ankles. Slight clubbing of fingers. Mild cyanosis of toes. Genitalia normal, neuromuscular normal.

Laboratory Examination: Sputum one ounce per day positive for tubercle bacilli. Sedimentation index, 9 at the end of 60 minutes. Urinalysis negative. Red blood cell 5,920,000. Hemoglobin, 85 per cent. White blood cells 13,800 with 79 per cent polymorphonuclear, 14 per cent lymphocytes, 5 per cent large lymphocytes, 1 per cent monocytes and 1 per cent eosinophiles. Erythrocytes were normal in size and shape. Wassermann and Kahn negative. Blood chemistry, sugar 77, N. P. N. 30, creatinine 1.5. Tuberculin test positive to second test dose tuberculin P. P. D.

Roentgen ray of the chest showed irregular striations and shaggy mottling throughout the upper two-thirds of the right chest with several ring shaped shadows. Similar striations and mottling at the left hilus and apex but no ring shaped shadows. The mediastinal structures were displaced to the right. No enlargement of the heart. Diaphragmatic shadows in outline and normal in position.

An electrocardiogram showed a rate of 92, a marked sinus arrhythmia. A PR interval of 0.16 seconds, a QRS interval of 0.08 seconds, and notching of the QRS complex in lead 3. An older electrocardiogram taken at Bell Memorial Hospital showed a first degree heart block (P R Q 21 sec.). Diagnosis, far advanced pulmonary tuberculosis with a congenital heart disease (tetralogy of Fallot).

CONCLUSION

These cases were presented to refute the dictum of Rokitansky and to demonstrate that the combination of diseases mentioned in the title while infrequent should not be overlooked. The five cases presented oc-

curred within the series of 522 cases of adult pulmonary tuberculosis treated at the Kansas City Tuberculosis Hospital during the last two years, an incidence of 0.96 per cent.⁵

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BIBLIOGRAPHY

1. Ehrenburg, G. E.: Some Physiopathological Aspects of Artificial Pneumothorax, *Am. Rev. Tuberc.* **30**:535 (November) 1934.
2. Reimann, Stanley P.: Kaufmann's Pathology for Students and Practitioners, Philadelphia, P. Blakiston's Sons & Co., p. 2452, 1929.
3. Hawes, J. B.: The Heart in Pulmonary Tuberculosis, *New England J. Med.* **207**:874 (Nov. 17) 1932.
4. Bronfin, I. D., and Simon, S.: Observations on Some Cardiac Lesions Coincident With Pulmonary Tuberculosis, *Am. Rev. Tuberc.* **18**:727 (December) 1928.
5. Since presenting the above paper another patient has been admitted to the hospital with a history of rheumatic fever, typical findings of mitral stenosis and a unilateral pulmonary tuberculosis with pleural effusion. He has been examined and rechecked similarly to the above five cases presented.

PNEUMOTHORAX TREATMENT OF LOBAR PNEUMONIA

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and

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The idea of pneumothorax in the treatment of lobar pneumonia was introduced by Friedman,¹ a German, in 1921. Articles appeared later in German journals at different times by various other clinicians during the next ten years. Then in 1932, Coghlan² published a very enthusiastic article contending he was able to produce crises which closely simulated natural crises. In about 50 per cent of his cases these crises were permanent; the others required further refills. He also stressed the immediate relief from pain and dyspnea, as well as a marked improvement in the general appearance of the patient following the pneumothorax. Later on Leiberma and Leopold³ made a very thorough review of the literature and found fifty published cases of which there were three deaths, or a mortality rate of 6 per cent. They also presented the results of their experiments on thirty-six dogs. Pneumonia was produced in these animals by the Robertson method and they were divided into two groups. The group receiving pneumothorax treatment had a mortality of 16 per cent, fifteen recovering and three dying; the untreated group had a mortality rate of 72 per cent, thirteen dying and five recovering. Since the time of their paper, Cowper and Behrend⁴ of Philadelphia have reported eleven cases with two fatalities and Hines and Bennett⁵ of Chicago

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twelve cases with four deaths. This increases the series to seventy cases, of which there were nine deaths, or a mortality rate of 12.8 per cent. Hines and Bennett took a more conservative attitude; although they thought the procedure to be of definite benefit they were not as enthusiastic as the other writers on the subject. All these writers stressed the liability of complications of respiratory or cardiac nature, although in a total of seventy cases only two instances appear, one of death due to cardiac failure following an air injection in Coghlan's series, the other a small empyema noted at autopsy in one of Hines and Bennett's cases.

No one to date has been able to explain conclusively the sequence of events which takes place following this procedure. Coghlan² offered the following theories: (1) Separation of the inflamed pleural surfaces results in relief from pain and dyspnea; (2) the inflamed lung is immobilized; (3) toxins are prevented from entering the general circulation and anoxemia is reduced because the procedure limits the flow of blood through the consolidated lobe or lobes.

Pneumothorax was used by us in seven cases of lobar pneumonia at St. Louis City Hospital No. 2. All the patients were Negroes. The only rule followed for selection of cases was that the disease be confined to one lung. Selection was not based on the severity of the infection; in fact several cases were rejected because their course, as judged from appearance and symptoms, was so mild we did not think this form of therapy necessary. Cases varied in age from 24 to 50 years. There were two women in the series. Diagnosis was made from physical examination and checked by roentgen ray to make doubly sure we were dealing with cases of unilateral involvements. Roentgenograms were repeated at intervals to detect early spreads to the contralateral lung. Air injections varied from 250 cc. to 400 cc. with refills at eighteen to twenty-four hour intervals, as a rule. Air refills were given to patients showing recurrence of fever or symptoms. The actual technic of the injection of air did not differ from that used in the tuberculous patient. Most of our cases were in a critical condition as is typical of patients seeking treatment in city institutions. Other than a few transfusions used in one or two cases no other treatment was given these patients excepting routine symptomatic and nursing care. Serums were not used because the hospital budget was not sufficient to take care of the expense. Oxygen therapy was omitted as the hospital is served by one antiquated tent, which is usually busy on a sur-

gical case when the medical department wants it; hence you can see further reasons for us resorting to this form of therapy.

REPORT OF CASES

Case 1, C. J., male, aged 24. Definite clinical and roentgen ray evidence of consolidation in midportion of left lung. An apparent crisis took place on the seventh day of the disease, followed in a few hours by an extension of the physical signs to the entire left lung and a return of fever. Thirty hours later patient received 300 cc. air by artificial pneumothorax, followed very shortly by a definite crisis. Twenty hours later a refill of 400 cc. air was given as the temperature tended to rise again. Following the second air injection the patient went on to an uneventful recovery. Sputum contained Type 3 pneumococci. Cough, pain and dyspnea were relieved markedly. A small effusion was noted on the twenty-third day which absorbed spontaneously.

Case 2, S. G., male, aged 34. Consolidation of right lower lobe. Was recovering from an acute gonorrheal arthritis at time of onset. Pneumothoraces administered on the second, third and fourth days and 300 cc., 250 cc. and 400 cc., respectively, were given. Following the first air fill the only improvement noted was relief of pain but the second injection apparently caused a definite drop in temperature and patient showed marked improvement in every way excepting he was more dyspneic for a couple of hours following the air fill. The third pneumothorax was given because of slight tendency of temperature to rise and at this time a temporary increase of dyspnea was again noted, although in every other respect patient improved. Roentgen ray at this time showed a complete collapse of the air bearing lobe on the diseased side. Recovery was uneventful. Sputum showed *B. mucosus capsulatus*.

Case 3, K. R., female, aged 40. Pneumonia of right upper lobe. Patient, a large stout individual and having considerable pain, was given 400 cc. air on the sixth day of disease, also a refill of 250 cc. twenty-four hours later. Pain and general appearance improved but the temperature curve was not affected. The air injections were discontinued at this time but on the tenth day, due to the persistence of the disease, 200 cc. of air were administered, followed very shortly by a definite crisis. The subsequent course was uneventful. On the eighteenth day a moderate right sided effusion was noted but this did not require treatment. Sputum showed Type 1 pneumococci.

Case 4, C. P., female, aged 29. Small consolidation of left lower lobe but the patient appeared sicker than the chest findings indicated. Pneumothoraces of 300 cc. and 200 cc. were administered on the third and fourth days, respectively. Following the air injections patient was much relieved as pain was a prominent symptom in this case. The temperature dropped steadily to normal in the thirty hours following the second air fill. Course uneventful until the fifteenth day of the disease when thoracentesis had to be done because of a pleural effusion which was causing dyspnea. The fluid was definitely of a serous nature and readily cleared spontaneously. Sputum showed a Type 4 pneumococcus.

Case 5, T. K., male, aged 48. Right upper lobe pneumonia. This patient received three pneumothoraces on the first, second and fourth days of 350 cc., 250 cc. and 200 cc., respectively. The improvement following air in this case was entirely symptomatic, but this proved very valuable as the patient had intolerable pleural pain and his relief was so marked following the first treatment that he asked when he

would receive another injection of air. He terminated his disease by a crisis on the sixth day, some forty-eight hours after his last air injection, so that air was not thought to be a factor in the crisis. His further course was uneventful. Type 4 pneumococci were found in his sputum.

Case 6, E. W., male, aged 50. Consolidation was present in right lower lobe. Patient acutely ill with marked pleuritic pain. Air fills on third, fourth and sixth days of 200 cc., 250 cc. and 250 cc., respectively. Drop in temperature and symptomatic improvement following first injection but he became jaundiced. Following second injection temperature showed a steady drop over the next twenty-four hours. The next refill was given mainly for intense pleural pain; following this he ran an uneventful course until the eighteenth day of his disease when a small effusion was noted which caused no trouble. Type 1 pneumococci were found in the sputum. The pneumothorax was thought to be a possible factor in the termination of the infection in this case.

Case 7, H. S., male, aged 25. An acutely ill patient with a consolidation of the entire right lung. Sputum showed *Bacillus mucosus capsulatus*. Pneumothoraces of 300 cc. and 250 cc. were given on the fourth and fifth days of the disease, respectively. The treatment was stopped as no improvement was noted following either air fill; in fact he seemed to have increased distress with marked positive pleural pressure readings following both air fills. On the eleventh day of his disease he developed an apparent spontaneous crisis, but the fever rose again shortly and there were some physical signs of a possible spread in the base of the left lung. Roentgen ray at this time showed definite resolution of the consolidation in the right lung. Patient expired on the seventeenth day of his illness. This case is included as we instituted pneumothorax treatment but we did not think the fatal outcome was in any way connected with the air injection, as in the interim the patient had an apparent crisis with the subsequent fatal spread of the infection taking place almost a week following the last pneumothorax.

COMMENT

Our experience with this form of treatment has been more in keeping with that of the conservative attitude of Hines and Bennett of Chicago than with the more enthusiastic reports of other writers. For instance, the number of air fills per case was never less than two in any of our patients, and in some cases three were used; whereas, Coghlan reported permanent crises in some of his patients with only one artificial pneumothorax and two were the most he had to resort to. Two of our cases terminated by crisis on the tenth day of the disease. One of these had an apparent spontaneous crisis on the eighth day, followed shortly by a spread of the infection and return of temperature, hence the response to pneumothorax treatment, which was rather dramatic in this patient, was thought to be more than a coincident due to the recent reinfection. The other case may have had a spontaneous termination although the crisis occurred shortly following an air fill. Four other cases terminated their disease on the third to the fifth day of their

illness. Three of these cases were apparently related to the time of air injection; that is, the temperature decline starting within twelve hours of the treatment, and one terminated his disease some twenty-four hours after the procedure. We must remember that pneumonia is a self-limiting disease and that the time of crisis is a variable factor taking place within forty-eight hours of the onset on up to two to three weeks. Hence, any one of these crises may have been spontaneous; that is, occurring in spite of rather than as a result of the therapy. This point of course stresses the necessity of a large group of reported cases so that more definite conclusions may be arrived at.

We were much impressed with the symptomatic improvement afforded these patients, relief of pain being the outstanding feature making it unnecessary to use analgesics of any type, although several of them had intolerable pleural pain before the air injection. We have since used this procedure successfully on several very painful cases of pleurisy and in another patient as a means of differentiating diaphragmatic pleurisy from upper abdominal disease by means of the disappearance of pain on injecting the air. In two of our patients dyspnea was increased temporarily following the treatment; but as a general rule the respiration was much easier. Cyanosis in the Negro is hard to determine but the resident physician, Dr. Smith, thought he was able to observe improvement in a few cases in which it was definite.

The occurrence in our series of pleural effusion in 56 per cent of the cases was a surprise to us as this had not been mentioned as a complication by other writers. They may have noted it but did not think it of sufficient importance to report as our cases which developed fluid ran a very uneventful course, excepting one which required tapping and revealed a clear serous type of fluid. The one fatal case we do not think can be laid to the treatment. We consider artificial pneumothorax merely an adjunct to other forms of treatment and certainly do not recommend it to supplant such valuable aids as specific sera and oxygen therapy. When we consider the shunting of blood which takes place to the unaffected portions of the lung when pneumothorax is instituted, as was proven by Dock and Harrison,⁶ we can see where this method might aid oxygen therapy. We raise the oxygen concentration in the aerated lung by placing the patient in air saturated with the gas, then by means of the pneumothorax over the consolidated lung we shunt blood from the unareated to the areated lung

tissue, hence combating anoxemia by two routes.

SUMMARY

Seven cases of lobar pneumonia treated by pneumothorax are presented. Relief of pain immediate in all cases and of dyspnea in five of the seven cases. One definite crisis was produced and several apparent ones by this method. There was one death in the series which was hardly related to the treatment. There was a mortality rate of 14.3 per cent in our series.

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BIBLIOGRAPHY

1. Friedman, U.: *Deutsche. Med. Wehnschr.* **47**:443, 1921.
2. Coghlan, J. J.: Treatment of Acute Lobar Pneumonia by Artificial Pneumothorax, *Lancet* **1**:13 (Jan. 2) 1932.
3. Lieberman, L. M., and Leopold, S. S.: Therapeutic Pneumothorax in Experimental Lobar Pneumonia in Dogs, *Am. J. M. Sc.* **187**:315, 1934.
4. Cowper and Behrend: *J. A. M. A.* **102**:1907 (June) 1934.
5. Hines and Bennett: *Arch. Int. Med.* **55**:100, 1935.
6. Dock and Harrison: Circulation in the Collapsed Lung, *Am. Rev. Tuberc.* **10**:534 (Jan. 25).

GENITO-URINARY INFECTIONS

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It shall be my purpose in this paper to discuss the more common infectious processes occurring in the urinary tract. To further restrict the subject matter, those conditions as they are found in the female will not be considered. Anterior urethritis, prostatitis, posterior urethritis, trigonitis, cystitis, ureteritis, pyelitis and pyelonephritis will be dealt with in the order named. Epididymitis and seminal vesiculitis shall be considered as secondary to one of the above infections.

Infection of the anterior urethra is almost exclusively due to the Neisserian organism. Historically it is interesting to note that gonorrhea and syphilis were formerly considered to be the same disease with merely different symptomatology. It was not until 1831 that the two infections were differentiated and syphilis was divided into its three stages. While medical science has discovered much of value regarding the pathology of gonorrhea and its complications, yet it remains a bitter truth that this disease is for the most part still lacking in capable management and treatment.

By way of review, it is well to consider a few characteristics of the gonococcus. First, it chooses only certain mucous surfaces for its habitat and, fortunately for mankind, it soon dies if it is removed from this chosen field unless sufficient moisture is provided. Another peculiarity of this germ is that the inflammation

in the urethra is not caused by the live organism itself but by its disintegration. Upon its death and dissolution a toxin is liberated and it is this material that gives rise to the tissue reaction. With the death of the gonococcus a substance is also produced which possesses the power to kill the germ itself. This is the so-called gonophage. This substance has been found to be specific in its action and has not been shown to possess ability to destroy other organisms in the laboratory.

A word as to pathology. The speed of tissue penetration of the gonococci is so rapid that thirty-six hours after exposure they are found deep in the submucosa of the urethra. During this penetration mild reaction is caused by the liberation of endotoxin from the dying invaders. At the beginning of the fourth day the most marked pathology is found around the urethral openings of the mucosal glands and there is a co-existing grouping of leukocytes about the bacterial colonies in the submucosa. Penetration between the epithelial cells has been made possible by the dissolving of the intracellular cement substance, probably by the endotoxin. As these epithelial cells are loosened many of them are shed. Deeper in the submucosa the gonococci are for the most part extracellular while nearer the urethra they are practically all intracellular. As the disease progresses the epithelial cells take on a squamous nature and some may be even filled with keratin granules. As the infection subsides the infiltration decreases and the mucosal glands are allowed to discharge their pent up pus. If the duct is not then sufficiently opened fibrosis ensues. If the proliferation of round cells becomes too marked due to prolonged infection stricture may be the end result.

The treatment of acute gonorrhea should be built upon the principle that we are not attempting to kill large numbers of bacteria, but rather that we are trying to produce tissue resistance as rapidly as possible. Free drainage of both the large and small channels is the aim of all treatment directed against the gonococcus. Gentleness and avoidance of overtreatment are absolutely necessary. The cooperation of the patient in avoiding alcoholic and sexual excitement is fully as important as the treatment. Our system of treatment is quite simple. The patient first empties his bladder, voiding into two glasses. Following this the urethra is gently irrigated with warm permanganate solution. The irrigating jar is placed low so as to eliminate the danger of excessive pressure. The whole length of the anterior urethra is thus washed clear of any pus and mucus. Care should be taken that a constant return flow is maintained between the nozzle and the meatus,

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thus avoiding any possible ballooning of the urethra or forcing of the cut-off muscle. Upon completion of the irrigation, one fourth ounce of one half of 1 per cent mercurochrome is slowly injected into the anterior urethra. This is held in the channel for five minutes and then allowed to flow out, the patient being cautioned not to void urine for an hour following the treatment. Particular care must be taken in the application of cotton, gauze, etc., as a dressing, as many times the discharge is dammed up within the urethra; and especial caution should be exercised in placing rubber bands or constricting bandages about the penis. The ordinary ready made sanitary bag is recommended for such use. Treatment as described above is given in the office once daily until the discharge remains only in the form of a "morning-drop." The urine at this time will be clear in two glasses and shreds may or may not be present in the first glass. This usually occurs about the fourth week after which the irrigations are given through and through into the bladder. The irrigating jar is elevated to the ceiling and the nozzle is held firmly in the meatus so that the connection is leak-proof. The bladder is comfortably filled with the solution and then voided. This filling and emptying is usually done about three times. Following this irrigation, a half ounce of 10 per cent argyrol is instilled beyond the cut-off muscle and allowed to remain in the prostatic urethra and bladder for an hour after the patient leaves the office. This instillation is done without the use of a catheter. The half ounce bulb syringe is filled and its contents injected into the urethra. The meatus is pinched together, the syringe removed and allowed to fill with air after which it is reinserted and the air forced into the channel, acting as a piston behind the solution thus forcing it through the external sphincter. The patient reports for such a treatment every other day. Such distention of the urethra may open up hidden foci in the walls and the patient is given slides to take home with instructions to make smears of the morning discharge. These are stained and in this way a careful check upon the progress of the disease is maintained. If the discharge returns the daily treatments are resumed for a time. On the other hand, if the discharge becomes less and disappears entirely the next step is an examination of the prostate with a finger in the rectum. The consistency, size and tenderness are carefully noted. The gland is then very mildly massaged, the technic of which will be described later. The secretion is studied first in wet specimen under a coverslip and later a smear is stained. There is, to be sure, a danger of opening up a quiescent focus but it is better to have discovered it at

this time than to have a patient who will infect an innocent person later on. If the secretion appears normal and no organisms are present we put the patient on a vacation of thirty days with instructions to return at the end of that time for another check-up of his prostatic secretion. If, however, his prostatic secretion is abnormal he is given prostatic massage three times a week until it returns to normal. We do not consider it wise to pass instruments of any description into the urethra until three months have elapsed since the acute infection. The question of just how long after an acute urethritis is the patient liable to convey the infection to others is impossible to answer. It depends entirely upon the severity of the infection and the tissue resistance of the patient. We do believe that intercourse is harmful for the three months following the acute stage and strongly urge that no intercourse be had without the use of a condom for four months following the disappearance of the discharge. As a final check upon the urethra a F. 22 bougie a boule is gently passed to the cut-off muscle and any hangs are noted on its withdrawal. If stricture formation has occurred it is then promptly ironed out. Such a plan of treatment of an acute gonorrheal urethritis must by necessity be flexible. No two cases are alike and the management must be undertaken with the best judgment of the physician each patient representing an individual problem in himself. Nonspecific and chemical urethritis occur frequently and in many cases are more difficult to cure than one of the specific types.

Prostatitis is far more common than is generally believed. At the outset we must accept the fact that there is far more nonvenereal prostatic infection than there is prostatitis secondary to a venereal disease. To the lay mind, a man who has prostatitis certainly must have been dissolute in his youth. Such a belief is erroneous and probably drives many a man away from a physician. Prostatitis belongs really to the group of focal infections and not to the venereal group. It ranks with teeth, tonsils and sinuses in the causation of vague arthritis, neuritis, neuralgia, lumbago, rheumatism, and the like. We have seen typical cases of sciatica clear up miraculously with the clearing up of the prostatitis.

Descending infection may reach the prostate by way of the bloodstream from some distant focus, as a tooth or tonsil. There may be no urinary symptoms accompanying the prostatic infection although usually urgency and frequency are noted. Low backache is the most universal symptom and is characterized by being more severe in the morning on arising and then as the patient stirs about the pain gradu-

ally becomes less marked. This is in exact contradistinction to ordinary arthritic pains which usually grow worse on activity. It is a comparatively easy task to determine the presence of infection in the prostate. We believe it best not to massage a gland on a full bladder because of the possibility of driving some of the infected material down into the ejaculatory ducts. Much can be determined by palpation of the prostate without the study of its secretion. Too much reliance must not be placed upon the patient's response to palpation the first time his prostate is examined. There is always the added fear that he is going to be hurt more than he really is, and to be sure he is not hurt too much, he will complain a little just to be on the safe side. Six or eight strokings properly made are sufficient to empty the gland. These are made in the direction of the natural drainage of the gland toward the external sphincter. The lateral lobes are massaged separately. Three strokings are made on each lobe, the first one just adjacent to the lateral sulcus and the third one just beside the median furrow. A final stroking downward over the urethra will terminate the procedure. Naturally this last stroking is apt to be the most painful to the patient. The secretion is then placed beneath a cover-slip and studied under the high dry lens. Normally there are present about five to eight pus cells per field. Such finding is not to be considered abnormal. It is possible at a glance to determine the proportion of lecithin to pus in the field. An increase in pus content is always accompanied by a decrease in lecithin. The amount of pus may vary from the normal to 20-30 per field to even clumps of pus cells occupying a whole field. The secretion on the slide is then fixed and stained and the presence of bacteria noted. Once a diagnosis of prostatitis is made no time should be lost in beginning treatment. This consists of prostatic massage three times a week for as long a time as is required to obtain a normal secretion. Sometimes six months of steady treatment is required. It is our custom to irrigate the bladder following each massage. Eradication of other foci of infection is necessary if a cure is to be effected. If there is a sinus feeding material to the prostate and the former is not cleaned up while the prostate is being treated it is usually only a matter of a few months until the prostatitis recurs. If staphylococci are present in the prostatic smear we have found neosalvarsan intravenously a valuable adjunct to massage. The aim of treatment of chronic prostatitis as outlined above is to restore the normal drainage of the gland. The acini which are full of pus and have an exudate on their walls are traumatized suffi-

ciently so that adhesions form between these walls, the cavity obliterated and fibrosis is the end result. No harm is done by massage to a healthy normal acinus. Sometimes a Kohlman dilator is used in conjunction with massage but in our practice this is the exception rather than the rule.

Acute prostatitis usually occurs as a complication of acute gonorrhea. Pain on sitting down is a universal complaint. Dysuria, even to the point of acute urinary retention, is a common symptom. Opium and belladonna rectal suppositories, rest in bed and symptomatic treatment is carried out. In acute retention, even in the presence of profuse urethral discharge, do not hesitate to catheterize the patient when he becomes uncomfortable.

Posterior urethritis may occur as a sequel to acute anterior urethritis and is evidenced by a cloudy second glass, frequency, urgency and suprapubic or perineal pain. Acute posterior urethritis is treated very much the same as acute prostatitis. A prescription containing tincture belladonna and tincture hyoscyamus given orally will aid considerably in alleviating the frequency. Hot sitz baths of twenty minutes' duration three or four times daily are very helpful.

Chronic posterior urethritis occurs in conjunction with an associated chronic prostatitis. The voided urine may or may not contain shreds. Probably the most frequent complaint of this condition is premature ejaculation. Our usual routine in such cases is to check carefully the prostatic secretion and give the patient at least six prostatic massages before any instrumentation of the deep urethra is attempted. Following this series of treatment a Young endoscope of 24 or 26 caliber is introduced. Quite often it is necessary to perform a meatotomy to permit passage of an instrument of such size. We do not hesitate to take this step as we believe a good view of the urethra is more to be desired than the avoidance of the loss of a few drops of blood. Quite often, too, a simple meatotomy itself has much to do with the clearing up of a chronic urethritis. With the endoscope in place, 20 per cent silver nitrate is applied to the verumontanum and any granulation tissue is touched with the same solution. The patient is instructed to abstain from sexual and alcoholic excitement and to return to the office at the end of ten days. Two or three endoscopic applications are usually sufficient to clear up the symptomatology in these cases.

Trigonitis occurs secondary to a posterior urethritis or a generalized cystitis. Marked urgency, frequency and burning on urination are complained of. Very small amounts of urine are voided at very frequent intervals.

There is very little difference in the daytime frequency and the nocturia, excepting that which is explainable on the lessened fluid intake during the night hours. Hematuria is very common, sometimes profuse. Bladder sedatives by mouth, hot sitz baths and bladder irrigations of solutions of silver nitrate offer a very satisfactory program of treatment. If the tenesmus becomes too severe rectal suppositories of opium and belladonna will offer much relief. It goes without saying that the associated urethritis and cystitis must also be attacked. A very important fact to bear in mind is this: If, during the use of silver irrigations, the bladder seems intolerant of such treatment never lose sight of the probability of a tuberculous cystitis and rule it out by guinea pig inoculation.

Cystitis offers various symptoms but of less severity than trigonitis. Suprapubic tenderness rather than pain is the rule. The urgency is less marked although there is frequency both day and night. The hematuria is less marked. The organism most frequently offending is the *B. coli*, arriving in the bladder by the descending route. Bladder irrigations of permanganate or silver followed by instillation of argyrol or mercurochrome are the lines of treatment followed in our office. If this fails to give results then the upper tract is studied by ureteral catheter.

Ureteritis is secondary to a kidney infection. It is usually called to our attention by the formation of stricture later in the reparative process and Hunner states that microscopic as well as macroscopic blood is present in these cases. Hematuria is also present in ureteritis in the absence of stricture.

As we stated, epididymitis and seminal vesiculitis would be treated as secondary manifestations. We shall omit the tuberculous types. Acute epididymitis develops in about 5 to 8 per cent of acute Neisserian infections. It is characterized by sudden onset of severe pain and swelling in the scrotum extending up into the corresponding groin along the course of the vas. There is a sudden correlated diminution in the urethral discharge. The treatment is an ice bag to the affected area, including the inguinal region of that side, support to the scrotum and cessation of all local urethral treatment. Fever and chills may occur and require symptomatic treatment. After a few days when the soreness to touch disappears, hot sitz baths are substituted for the ice bag to aid in the process of resolution. As the urethral discharge reappears treatment directed against it is resumed. It is generally agreed that this type of acute infection of the epididymis arrives at its destination through the lumen of the vas. This also is the accepted route following pros-

tatectomy as evidenced by the almost universal practice among urologists of preliminary vas ligation. Acute epididymitis however does occur in the absence of either of the above and the organisms reach there by way of the blood stream. It is generally thought that, like the kidney, the epididymis passes bacteria through itself without any damage to its structure.

Chronic epididymitis following an acute affair really is a misstatement, the usual palpable induration present in the body or tail of the structure years after an acute flare-up being only scar and requiring no treatment.

Seminal vesiculitis occurs acutely associated with acute posterior urethritis and prostatitis and the diagnosis is made by rectal examination. The vesicles are palpably enlarged, exquisitely tender and pressure thereon refers sharp shooting pains along the course of the vas into the corresponding groin. Bloody, painful, nocturnal losses are pathognomonic of infection in the vesicles. The treatment of acute vesiculitis is essentially the same as for acute prostatitis.

Chronic seminal vesiculitis is the usual source of gonorrheal rheumatism and the local symptoms are a sense of fullness in the perineum and bladder neck with, inevitably, pains in the inguinal regions extending up into the lower abdominal quadrants. In such a case, where it is evident that the vesicles are acting as a focus of infection, the patient is given an office treatment three times weekly. The finger in the rectum is passed up over the vesicle to its upper and outer limit. Then by stripping, the contents are emptied downward toward the midline in the direction of their natural drainage. This is followed by a bladder irrigation and perhaps by a deep instillation of mercurochrome or acriflavine.

Pyelitis and phylonephritis we believe are superfluous terms. In other words a true pyelitis without associated parenchymal damage does not occur. The treatment of kidney infections may be undertaken by pelvic lavage by way of ureteral catheters with such solutions as silver nitrate up to 1 per cent; acriflavine 1:1000 and mercurochrome $\frac{1}{2}$ of 1 per cent. Our choice of oral medication remains the pendulum treatment of alternating alkalinity and acidity and the use with alkaline urine of 3 grains of neutral acriflavine daily.

In summarizing, the following points are to be emphasized:

1. Gonorrheal urethritis is not caused by the live organism itself but rather by the products of its disintegration.

2. Avoidance of overtreatment is the most important factor in the management of gonorrhea.

3. An examination of the prostatic secretion

is always made following an acute gonorrheal urethritis.

4. The prostate as a focus of infection in lumbago, sciatica, neuralgia, iritis, etc., must not be overlooked.

5. The intravenous use of neosalvarsan is a valuable aid in the treatment of staphylococcic infections of the genito-urinary tract.

6. In cases of cystitis in which silver nitrate irrigations seem to increase the severity of the symptoms, urinary tract tuberculosis should be ruled out.

7. The colon bacillus is the most common organism in pyelonephritis and cystitis.

8. Acute epididymitis occurs in 5 to 8 per cent of acute Neisserian infections.

9. Bloody, painful nocturnal losses are pathognomic of infection in the seminal vesicles.

10. Chronic seminal vesiculitis is the usual source of gonorrheal rheumatism.

600 Professional Building.

UROLOGIC FINDINGS IN GENERAL PRACTICE

ALEXANDER VAN RAVENSWAAY, M.D.

BOONVILLE, MO.

In the general run of an office practice every doctor will find many patients whose complaints can be traced to some abnormality of the kidney. If possible, this lead should be followed up systematically and it is surprising how often a serious trouble is found behind a pain in the back or a little pus or blood in the urine. Formerly this was attributed, generally, to a stone or "gravel" in the kidney and some diuretic or solvent was given to drive off the stone. Since the introduction of the roentgen ray and cystoscope it seems to me that stones in the urinary tract are comparatively rare. Other conditions, such as hydronephrosis, pyelonephritis, strictures of the ureter and tumors of the kidney more often are the culprits. The kidney is often also the cause of an irregular fever, with or without chills, which formerly was diagnosed as malaria or typhoid fever.

It is not always easy to come to a definite conclusion as to the source of this fever. There are still a good many patients operated upon for appendicitis who are really suffering from an affection of the urinary tract. I do not believe there is one surgeon in the country who could truthfully say he had not been misled by these symptoms.

On the other hand, inflammatory conditions of other organs, as the gallbladder or appendix, may be the cause of urinary symptoms, and after removal of the offending viscus the kidney will clear up. It is of advantage to a gen-

eral practitioner to have a working knowledge of the cystoscope, as I judge at least 10 per cent of his patients come to the office with complaints originating in the urinary tract. A little gentleness and practice accumulated during the years are of great help to see the patient through "the ordeal he dreaded so." Occasionally it might be difficult to find the ureteral orifice, especially in an inflamed bladder. Do not persist too long. What seems difficult to-day may be easy to accomplish tomorrow. Always put yourself in the patient's place and treat him as you would wish to be treated.

There is not a distinct borderline between general practice and urology. To wash out the bladder with a rubber catheter for a cystitis is working in the dark. It is just as easy to insert a cystoscope and try to determine the cause of the cystitis. By doing this first it is not hard to visualize the ureteral outlets and gradually get the knack of inserting the catheters into the ureter and make pyelograms.

Suppose the practitioner has mastered the technic, what can he expect to find? Often he sees a simple cystitis, an enlarged prostate gland, a diverticulum, rarely a tumor or bladder stone. Going up in the ureter he may meet a stricture, a small stone coming down, a kink in the ureter, a congenitally displaced kidney or a "floating" kidney. The pelvis of the kidney might be inflamed or distorted, or it might contain a stone. By this method he gets great help for his differential diagnosis, as the following cases have taught us:

REPORT OF CASES

Case 1. A female, aged 15, complained for four months of occasional pain in the left lumbar region with loss of weight. Percussion of the flank was rather painful. Temperature normal. Urinalysis negative. Pyelography revealed a large hydronephrosis of left kidney. Repeated weekly lavage of kidney gave relief until May 17, 1935, when pain became severe and hydronephrosis was distinctly palpable under the left costal arch and seemed to be the size of a grapefruit. Lavage did not relieve the condition. The catheter did not seem to enter the hydronephrotic sac. Nephrectomy was done May 26, 1935. Patient made a good recovery and was relieved of her pain.

Case 2. A female, aged 31, married, no children, complained of irregular chills followed by fever and vomiting. The condition was diagnosed as malaria but did not respond to quinine. Six years previously her appendix had been removed. One year previously she had an abdominal operation for adhesions. She now complained of distinct pain over the right lumbar region. Urine was negative. White blood cell count was 6450. No plasmocytes in blood. Pyelogram showed a slightly enlarged pelvis of kidney with upper calyces compressed. An exploratory operation through the loin was decided upon. The kidney was found to contain a hard inflammatory area in the upper pole tightly adherent to the dome of the diaphragm. Kidney was removed. Pathologic report follows: Kidney measures 10 by 5 by $3\frac{1}{2}$ cm. in size. The



Fig. 1. Hydronephrosis of left kidney.

capsule is thickened and strips with some difficulty. On section a fibrous lesion measuring 2 by 2 by 1.5 cm. in size, partially replacing the upper pole and on section is seen to contain a number of yellowish-gray, questionably caseous areas. Sections show marked inflammatory reaction, consisting chiefly of lymphocytes and mononuclear leukocytes, which in some areas has advanced to necrosis while in other areas there is marked fibrous tissue replacement. The process involves both cortex and medulla. No giant cells are seen. Diagnosis: Nephritis (nonspecific).

Note. The impression is that this patient has suffered for a long time from a low grade inflammatory process which has never progressed to actual abscess formation although localized areas of necrosis well walled-in by fibrous tissue are present. Patient was



Fig. 2. Hydronephrosis; specimen after nephrectomy.



Fig. 3. Abscess in upper pole of kidney not communicating with pelvis.

seen three months after operation. She was able to do her housework for the first time in one year, looked well and had gained thirty pounds. Urinary findings were normal.

Case 3. A female aged 50, gave the following history: Several years ago she passed blood in the urine. One half year ago she had a similar attack. A week before she entered the hospital she became ill with a cold and developed pain across the back. Otherwise she had been in good health all her life.

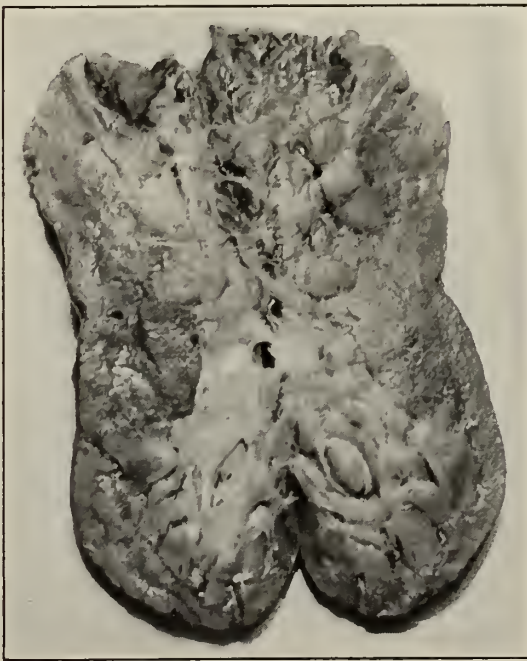


Fig. 4. Abscess in upper pole of kidney.

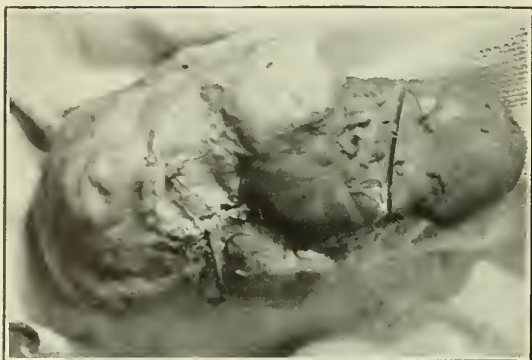


Fig. 5. Multilocular cyst in upper pole of kidney; specimen after nephrectomy.

Examination revealed pain on percussion over left kidney region. Temperature fluctuated between 98 F. and 101 F. Pyelography showed pelvis rather enlarged and upper calyces compressed by a mass in the upper pole. Diagnosis: Tumor or abscess of upper pole of kidney. Nephrectomy revealed a solitary abscess in upper pole kidney, apparently not communicating with pelvis of kidney. Patient made good recovery.

Case 4. Female, aged 42, had an abdominal operation five years ago, right tube and ovary removed. For month prior to coming to us she had chills and fever. After the first five days of her illness the urine became cloudy and the fever dropped. However, during her confinement at hospital the temperature fluctuated between normal and 101 F. On examination she showed a very large tumor in the abdomen, on left side, which could have been either the spleen or a tumor of the left kidney. Pyelography showed the kidney pushed down by a very large tumor in the upper pole. Bladder: marked cystitis. There were two ureteral openings and two ureters in the left side. Right kidney was apparently normal. Operation, done transperitoneally, revealed a large multilocular cyst in upper part of left kidney. Patient made good recovery.

Case 5. Kidney tumor in child 14 months old. Baby referred by home doctor because he felt a mass in left hypochondrium. Examination revealed a large tumor of left kidney. Urinary findings were negative. Nephrectomy was successfully performed and baby was taken home after eleven days, apparently in good condition. Pathologic report: Wilm's tumor of kidney. We have been unable to contact family to inquire about ultimate fate of baby.



Fig. 6. Wilms tumor of kidney.

I hope to have been able to show that the general practitioner might be able to diagnose the majority of kidney cases which come his way; or at least he must be able to discern if the patient's complaints are due to some kidney ailment, leaving it to the specialist to locate the lesion. In this way he can give happiness and health to many chronic invalids.

Van Ravenswaay Clinic.

PREGNANCIES AFTER NEPHRECTOMY FOR TUBERCULOSIS

EDMUND LISSACK, M.D.

CONCORDIA, MO.

In 1932 Kanter and Klawans in a paper on sterilization claim that tuberculosis of the kidney precludes pregnancy even though the focus of infection has been removed by nephrectomy. Quoting from their paper: "If the patient has had one kidney removed because of a tuberculous process she should be sterilized in view of the fact that most often renal tuberculosis is bilateral even though it may not show up in the opposite kidney for several years after the primary focus had been removed. If such a woman should become pregnant a fatal outcome can be anticipated."

They do not convey the idea, however, that every woman who has had a nephrectomy should be sterilized, but say that a previous nephrectomy in cases where the kidney had been removed because of tuberculosis or when laboratory tests showed that the remaining kidney is not functioning normally is an indication for sterilization.

"The prognosis for pregnancy after nephrectomy," quoting Adair and Stieglitz, "is influenced by the condition for which the nephrectomy was performed. Pregnancy in individuals who were nephrectomized for tuberculosis is naturally to be regarded with suspicion, and in such cases the prognosis for a future pregnancy is not as good as those instances where the operation was necessitated by conditions whose likelihood of recurrence is slight. . . . It would seem, therefore, that except in special instances, nephrectomized women may be allowed to marry and become pregnant, provided they show no renal symptoms within three years in case the nephrectomy was done for tuberculosis."

Schramm who I believe was the first to express a view on pregnancies after nephrectomy concluded that while pregnancy could go ahead without damage to the remaining kidney thought it would be more advisable to prohibit marriage.

Ferguson in 1916 suggested that pregnancy should be delayed for three years after neph-

rectomy to give the remaining kidney a chance to adapt itself to the double burden.

Matthews in a paper written in 1921 strongly argues that there is no indication for the immediate termination of pregnancy on the discovery of a nephrectomy in a patient. He concludes that pregnancies after nephrectomy follow their normal course, and that it is no more hazardous for the mother and baby than pregnancy under normal conditions, provided that the remaining kidney is functioning properly. Where the nephrectomy was performed for tuberculosis, however, it is very important to ascertain whether or not the patient is free from symptoms of tuberculosis in the lungs, bladder, ureter and remaining kidney for three years or more before pregnancy may be allowed to occur.

Hryntschak in January, 1935, stated: "Women who have had one kidney removed for tuberculosis can later if the other kidney remains healthy be permitted to have children with perfect safety. Wildbolz, among 600 cases of nephrectomy for tuberculosis, saw a tuberculosis in the second kidney follow in only nineteen cases."

"During pregnancy there seems to be little difference" quoting Prather and Crabtree, "in the anatomic behavior of the lone kidney from those with two kidneys. The typical dilatation of upper ureter and kidney pelvis occurs with its associated kinks. This begins late in the third or early in the fourth month. The lone kidney on the right side undergoes more dilatation than one on the left side. Slight rotation of the uterus during its enlargement produces more pressure on the pelvic portion of the right ureter than on the left. This inequality of dilatation would seem to indicate, as has been stated before, that the dilatation is secondary to pressure of the uterus at the brim of the true bony pelvis rather than any hyperplasia at the ureterovesical junction. The midureters are carried laterally by the uterine enlargement just the same as when two kidneys are present. . . . From a physiologic standpoint the lone kidney which is not diseased maintains its excretory function during pregnancy in a splendid manner. Observations on catheter specimens indicate no disturbance that can be detected by the usual examinations for albumin, sugar, specific gravity and the centrifuged sediment. Blood pressure has shown no change during pregnancy from readings in the same patient postpartum. The nonprotein nitrogen seems to follow the standard set by two kidneys averaging slightly lower than is found in the non-pregnant. Phenolsulphonphthalein excretion by the two hour and ten minute test measures favorably with the total put out when both kidneys are present. These optimistic remarks

concerning lone kidney physiology are general statements to which exceptions can naturally readily be found. In other words, complications do arise in some patients making action imperative if one is to avoid serious situations."

Nephrectomy is, therefore, not a contraindication to pregnancy, but definite exceptions exist and it is only by proper and careful prenatal supervision, together with careful scientific laboratory study, including kidney function tests, that selected cases may be allowed to continue their prenatal course. Prather and Crabtree further state that, "Thought and attention to the lone kidney in regard to the more distant future must be emphasized, as well as consideration for the duration of the pregnancy. The patient whose study reveals nothing abnormal has little to fear and should always be allowed to continue the pregnancy under close observation."

Matthews, in the previously mentioned paper, strongly urges that a more scientific study of all nephrectomized women be undertaken and that complete reports, including laboratory study for kidney function and urinary excretion, be published in each case of pregnancy after nephrectomy.

I am, therefore, presenting a study of a woman with a right nephrectomy for tuberculosis whom I conducted through four consecutive pregnancies, successfully delivered four living and healthy children, and who made uneventful recovery in each instance.

REPORT OF CASE

Mrs. M. R. F., aged 24, entered Research Hospital, January 5, 1924, complaining of frequency of urination and pain in the right renal and ureteral region with daily rise of temperature.

After thorough and exhaustive laboratory examinations, including guinea pig inoculation, it was found that the condition was due to tuberculosis of the right kidney. Tubercle bacilli were isolated from the guinea pig.

January 7, 1924, Dr. E. G. Mark performed a right nephrectomy. Postoperative condition was good and patient was released from the hospital in nine days. Two months after she was released from the hospital she married. Ninety-five days after the nephrectomy she presented herself for prenatal examination and care.

Her menstrual history follows: Menstruation began at 13, frequency every 20 to 28 days, lasting from 3 to 4 days with very slight amount of bleeding and no pain. Last menstrual period was April 9, 1924.

At the time of the first prenatal visit she complained of nausea and vomiting, slight faintness and leukorrhea. Blood pressure 110/70, temperature 98.6, pulse 84, urine showed a specific gravity of 1020, acid reaction, clear, straw color, no albumin, no sugar and no leukocytes.

The examination showed a well nourished woman, weighing 185 pounds, heart and lungs normal, abdomen tense over the urinary bladder but otherwise normal. Pelvic measurements: Interspinous 24 cm., intercrystal 25 cm., intertrochanteric 33 cm., external conjugate 20

cm., transverse diameter of outlet 11 cm., diagonal conjugate 12.5 cm.

The patient returned for 17 prenatal observations during this first pregnancy. The urine examinations at all times were negative, excepting on one occasion which was December 10, 1924. On that date she complained of swelling of the legs, feet, arms, and hands, dizziness and headache. The urine contained a slight trace of albumin.

She was advised about her condition, told to be watchful for symptoms of eclampsia and instructed as to her care. Rest in bed was prescribed, with limited fluid intake, increased elimination and salt-free diet. Fetal heart tones were heard to the right of the umbilicus and on a level with it at about four fingers breadth to the right. Tones were clear and distinct. Fetal heart rate 120 per minute, mother's heart rate 74. Blood pressure 120/80. Right occiput posterior position was diagnosed.

Labor pains commenced about 2 a. m. January 17, 1925. Membranes ruptured spontaneously at 11 a. m. The cervix was fully dilated at 1 p. m., head on the perineum, patient having strong pains and making good progress. A female infant, weighing $7\frac{1}{2}$ pounds, was delivered at 1:30 p. m. Two tight loops of cord around the neck were freed and resuscitation successfully applied. Chloroform anesthesia was used.

The placenta was expressed about 40 minutes after the delivery and 1 cc. of aseptic ergot was administered. A second degree laceration occurred which was immediately repaired.

Patient rested in bed for 10 days. The baby was nursed at the breast.

Postnatal examination at five weeks postpartum revealed a normal condition, perineum well healed, introitus fairly roomy, cervix smooth and closed, uterus in anterior position, freely movable and well involuted. Urine clear, amber in color, Sp. Gr. 1020, no sugar or albumin. Patient weighed 200 pounds, a gain of 15 pounds over prepregnancy weight.

July 14, 1927, patient returned for maternity care for second time. Physical examination at this time was negative excepting that the teeth needed dental attention. Urine was cloudy, gray in color, Sp. Gr. 1015, alkaline, no albumin or sugar. Sediment, causing turbidity, was composed of urates and phosphates.

July 17, 1927, Mosenenthal test, from urine taken from 10 a. m. to 8 p. m., showed a specific gravity varying from 1009 to 1020. Night urine, Sp. Gr. 1025. Urine otherwise showed a trace of albumin, was cloudy, contained no sugar but did have quite a sediment. Microscopic examination of this sediment revealed few pus cells and hyalin casts. Mosenenthal tests were repeated several times with specific gravities varying from 1010 to 1020. Albumin and casts were never abundant.

Patient was placed on low protein and salt-free diet and rest in bed. Bromides prescribed. Condition responded readily. Blood pressure 125/80. This second pregnancy was marked only by much nausea and vomiting in the early months.

July 19, 1927, I advised a urological consultation. The urologist reported the following: "Her urine showed a very slight trace of albumin with 2 to 4 white cells to the high power field. No red cells and no casts. Her output of dye (phenolsulphonphthalein) was 53 per cent with a two hour period during which time she put out 585 cc. of urine. Her intake for the twenty-four hours was 52 ounces and her output 50 ounces. N. P. N. was 28.6; creatinin 1.7; sugar 84.7, all well within the normal limit. Nothing was found in her blood count to indicate any infection, her hemoglobin

being 82 per cent with 4,540,000 R. B. C. and 7800 W. B. C."

"I feel that if she has any degree of nephritis," he continued, "it is of the slightest amount."

Patient reported for 14 prenatal observations during this second pregnancy. Several Mosenenthals were made all showing a variation in specific gravity from 1004 to 1010.

March 15, 1928, the second baby was born; labor and puerperium normal. Thereafter, this patient went through two more pregnancies normally. The third baby was born March 17, 1932; the fourth, August 21, 1934.

Patient visited the office April 17, 1935, for a postnatal examination. At this time the urine was straw colored, Sp. Gr. 1020, clear, albumin and sugar free. Blood pressure 120/80, Hg. 90 per cent. Patient, living on a farm, has been doing all her own house work even milking. A Mosenenthal test, from urine the day after this examination, 24 hour specimen, showed a specific gravity varying from 1010 to 1022.

CONCLUSIONS

Despite a nephrectomy for tuberculosis this patient was successfully delivered of four living and healthy children.

Generally speaking, nephrectomy is not a contraindication to pregnancy.

Patients showing no abnormalities may be allowed to continue pregnancy under close observation.

BIBLIOGRAPHY

- Kanter, A. E. and Klawans, A. H.: *Am. J. Surg.* **18**:529 (December) 1932.
Adair, F. L., and Stieglitz, E. J.: *Obstetric Medicine*, Philadelphia, Lea and Febiger, 1934.
Prather, G. C., and Crabtree, E. G.: *Tr. Am. Assn. Genito-Urinary Surgeons* **26**, 1933.
Schramm, J.: *Berl. klin. Wehnschr.* **33**:113, 1896.
Ferguson, J. H.: *Obst. Tr. Edinburg* **23**:57, 1906.
Matthews, H. B.: *J. A. M. A.* **77**:1634, 1921.
Hryntschak, J.: *Urol. & Cutan. Rev.* (June) 1935.

ANTIGENIC VALUE OF VARIOUS PREPARATIONS OF DIPHTHERIA TOXOID

The difference in the percentage of persons completely immunized in the present series to whom Claire E. Healey, Chicago (*Journal A. M. A.*, Oct. 12, 1935), gave Ramon's toxoid and the percentage completely immunized in the series reported by the Dick's in 1929 may be accounted for by the difference in the average size of the tests, the interval that elapsed between the doses, the length of time that elapsed before the retesting was done and the ninety-six hour as well as the forty-eight hour reading of the tests made in the present experiment. If allowance is made for these differences, it may be concluded that toxoid prepared in the United States in 1929-1932 was about equal in antigenic value to that prepared by Ramon in France in 1929 and in 1934. However, from 1932 to 1934 there has occurred a decrease in the antigenic value of diphtheria toxoid on the market in this country, this decrease being evidenced by a decline of from 20 to 30 per cent in the number of susceptible adults completely immunized by the use of the same technic. Meanwhile the antigenic value of the French toxoid has remained practically the same. The results obtained for both the French and the American toxoids used in the present experiment might have shown a higher percentage of persons immunized had the retests been made after a longer time had elapsed.

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NOVEMBER, 1935

EDITORIALS

CANCER CLINIC TO HAVE HOSPITAL FACILITIES

In 1932 facilities which had cost the citizens of the state \$20,000 were utilized for the care of but six patients. The \$20,000 was the investment for radium in cancer treatment and facilities for diagnosis at the State Hospital at Fulton but the laws of the state made it impossible for any except indigent insane persons to be admitted to the hospital. Thus only cancer sufferers who had been adjudged both indigent and insane could receive this benefit.

During the summer of 1933, after this situation had been brought to the attention of the Eleemosynary Board, the Committee on Cancer of the Missouri State Medical Association was requested by the Board to devise a means whereby this equipment could reach more people. The solution was an ambulatory clinic which was opened September 20, 1933. During the first year of the clinic's existence, despite the handicap of the impossibility of hospitalization except when that could be accomplished in a private hospital, eighty-six patients applied for treatment at the Fulton clinic and seventy were admitted. Sixteen were too far advanced for treatment. The patients treated were drawn from eighteen counties.

Through an act of the last legislature indigent persons suffering from certain conditions other than mental diseases are permitted to be treated in the eleemosynary institutions. This will allow the hospitalization of cancer patients and remove one of the worst obstacles to the present work at Fulton.

As a part of the \$1,500,000 building program for state hospitals it is planned that the Fulton hospital shall have a fully equipped cancer clinic. The clinic is to be located in a penthouse on the new building to be erected and will accommodate twenty-four patients at the beginning.

Definite plans for the clinic were discussed at a meeting in St. Louis September 27 which

was attended by representatives of the Eleemosynary Board, the Committee on Cancer and members of the staffs of the state hospitals.

SOUTHERN MEDICAL ASSOCIATION

Missouri has been a part of the Southern Medical Association for twenty years but the twenty-ninth annual meeting which will convene in St. Louis, November 19-21, will offer Missouri its first opportunity to be host to the Association. There are 250 members of the organization in Missouri; the total membership is well over 6000.

The program of this session will be conducted similarly to those of the last several years. On Tuesday, November 19, and Wednesday morning five clinical sessions will run concurrently. Beginning Wednesday afternoon the sixteen scientific sections and sessions of five other organizations assembling conjointly will begin meetings and continue through Friday noon.

The first day has been designated as St. Louis Day and all presentations will be made by St. Louis men. The morning of the second day will be devoted to presentations by guests from parts of the United States not included in the Southern Medical Association. Several foreign countries will also be represented.

All scientific sessions and all exhibits, technical and scientific, will be held in the Municipal Auditorium. The most widely separated meeting places in the auditorium are within two minutes' walk of each other. There will be a public meeting on Tuesday evening. The general session featuring the address of welcome, the president's address, the report of the council and the election of officers will be held Wednesday evening in the ballroom of the Jefferson Hotel and followed by the president's reception and ball. Alumni reunion dinners will be held on Thursday evening.

The Southern Medical Association was organized at Chattanooga in 1906. In that year Dr. G. C. Savage, Nashville, president at that time of the Tennessee State Medical Association, suggested that members of the Tri-State Medical Society of Georgia, Alabama and Tennessee invite physicians of Florida, Louisiana and Mississippi to join them in an organization to become the Southeastern Branch of the American Medical Association, it having been previously suggested that the American Medical Association should have regional branches. The American Medical Association abandoned the plan of having regional societies and the Southern Medical Association has continued as an independent organization.

The original constitution was prepared at the Chattanooga meeting. It was rewritten in 1926

by a special committee appointed by the council and adopted in 1927 but no fundamental changes were made. The purpose of the association is given in the constitution as follows: "The purpose of this Association shall be to develop and foster scientific medicine and medical fraternalism. It shall have no direct connection with or control over any other society or organization, nor shall it at any time be controlled by any other society or organization. All meetings of the Association shall be for the sole purpose of reading and discussing papers pertaining to the science of medicine, public health and to medical education. The Association shall not at any time take active part in any economic, political or sectarian questions or concerted movements for securing legislative enactments." A by-law provides that only members in good standing of county and state associations be eligible for membership in the Southern Medical Association.

An official journal was published for a short time but was not a financial success and was abandoned in 1909 and the association decided to select as its official organ a medical periodical that was already established. The contract was awarded to the *Gulf States Journal of Medicine and Surgery* of Mobile, and its editor, Dr. Seale Harris, was elected secretary-treasurer. In 1910 the *Southern Medical Journal* of Nashville was purchased by Dr. Harris who consolidated it with the *Gulf States Journal of Medicine and Surgery* under the name of the *Southern Medical Journal*, Journal of the Southern Medical Association. When the journal was launched Dr. Harris and the association decided that the advertising department would adopt the rules of the Council on Pharmacy and Chemistry of the American Medical Association in regard to pharmaceutical preparations admitted to the advertising pages. This was probably the first independently owned medical journal to adopt these rules. The state medical association journals at that time established and those established later on all followed the rules of the Council on Pharmacy and Chemistry.

In 1911 the association contracted with the stockholders of the medical journal to take over the journal as its own property after a period of ten years on the payment of a stipulated amount paid annually. This amount was paid by the association out of the income from the advertising pages within seven years and the journal became the property of the Southern Medical Association. Dr. Harris was editor in chief and secretary-treasurer of the journal for eleven years resigning from the position in 1921. On the resignation of Dr. Harris as secretary-treasurer Mr. C. P. Loranz who had been

assistant secretary and treasurer since 1912 was elected secretary-treasurer and business manager which position he still retains. Dr. M. Y. Dabney, Birmingham, was made editor in chief on the resignation of Dr. Harris.

The association originally had three sections, viz., medicine, surgery and ophthalmology and otolaryngology. Other sections have been added in the following order: Public health, railway surgery, pediatrics, gastro-enterology, pathology, neurology and psychology, radiology, dermatology and syphilology, bone and joint surgery, gynecology, obstetrics, urology and medical education.

The association is governed by a board of trustees chosen from ex-presidents and a council. Dr. M. Pinson Neal, Columbia, Missouri, is the councilor from Missouri. Dr. Neal is also chairman of the section on pathology.

The St. Louis Medical Society will act as hosts to the 1935 session. Dr. Quitman U. Newell is general chairman of the committee on arrangements for the convention and Drs. John R. Caulk and John C. Morfit are vice chairmen. Dr. G. V. Stryker is secretary of the committee. Subcommittees and their chairmen are: Finance, Dr. Llewellyn Sale; entertainment, Dr. O. P. J. Falk; hotels and meeting places, Dr. M. F. Arbuckle; publicity, Dr. R. V. Powell; exhibits, Dr. Leland B. Alford; alumni reunions, Dr. E. C. Ernst; membership, Dr. R. A. Woolsey; program and clinics, Dr. Alphonse McMahon; information, Dr. F. D. Gorham; transportation, Dr. P. N. Davis; lanterns, Dr. C. H. Eyermann; golf, Dr. Arthur M. Alden; trap shooting, Dr. Charles D. O'Keefe; women physicians, Dr. Katherine Schaaf.

A NEW HEALTH SURVEY

A comprehensive health survey is being conducted by the Government directed principally toward gaining knowledge of chronic illnesses. Longevity of life has been gained largely by control of infectious diseases of childhood and the present study, while covering other phases of illness, will be directed especially to the causes of chronic illnesses and disabilities that usually appear after middle life.

Dr. L. R. Thompson, Assistant Surgeon General of the United States Public Health Service, will be in charge of the survey and a regional supervisor has been appointed in each area. It is understood that the stimulus for the survey came from the Secretary of Labor and that it meets with administration approval.

The survey will be conducted in nineteen states, Missouri being one of these. Each state will be divided into five areas which will include large cities, smaller cities, towns and rural com-

munities. Personal interviews will be held with approximately 750,000 families. It will give employment to 30,000 persons who will be selected from relief rolls with the exception of some supervisory and technical personnel.

The County Medical Societies and county and city health departments have been invited to cooperate with the Government in making this survey.

The sections of Missouri to be covered by the survey are Chillicothe, Clinton, Kansas City, St. Louis and Springfield.

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS ADOPTS NEW POLICY

A comprehensive resurvey of medical education was begun by the Council on Medical Education and Hospitals in September, 1934. The Council, realizing this need, solicited the cooperation of the Association of American Medical Colleges and the Federation of State Medical Boards of the United States. The Trustees of the American Medical Association authorized a special appropriation for the work. At the 1935 Session it was reported that forty-five medical schools had been visited.

At a meeting of the Council in Denver on September 15 certain significant weaknesses were revealed and the following statements were made by the Council:

There is a tendency for medical schools to enlarge their enrollment without a corresponding increase in personnel or instructional facilities.

With a growing appreciation of the necessity for an intimate correlation between clinical and laboratory knowledge, it is evident that this can be obtained only by increasingly close contact between preclinical and clinical departments continuously maintained from the time the student first enters the medical school until he graduates.

The advances of the medical sciences have been and should be independent of any sectarian point of view, and medical education should not be handicapped or directed by a dogmatic attitude toward disease.

Because of these findings the Council took the following action:

(a) *Resolved*, That in each medical school the number of students should not exceed the number that can be adequately taught with the laboratory, library and clinical facilities available and for whom a sufficiently large and competent teaching staff is provided.

(b) *Resolved*, That after July 1, 1938, the Council on Medical Education and Hospitals will no longer publish a list of approved two-year medical schools.

(c) *Resolved*, That after July 1, 1938, the Council on Medical Education and Hospitals will no longer carry on its approved list schools of sectarian medicine.

STATE CONTROLLED MEDICAL SERVICE TO BE DEBATED

"Resolved: That the several states should enact legislation providing for a system of complete medical service available to all citizens at public expense" is the subject which the National University Extension Association Debate Committee has announced for its subject for the academic year 1935-36. There are thirty debate leagues comprising approximately 100,000 students in high schools, colleges and universities throughout the United States. Physicians throughout the country have assisted the debaters in obtaining authoritative information.

Debate coaches of Missouri will meet November 7 in St. Louis during the convention of the Missouri State Teachers' Association. The Rev. Alphonse M. Schwitalla, S. J., Dean of St. Louis University School of Medicine and associate member of the St. Louis Medical Society, will represent the Missouri State Medical Association at this meeting and present the viewpoint of the physicians.

On November 12 the National Broadcasting Company is providing the facilities of its Red Network for a chain broadcast of a debate on this question. The affirmative will be taken by William Trufont Foster, director, Pollak Foundation, and Bower Aly, professor of English, University of Missouri, and editor of the "Debate Handbook." The negative will be taken by Dr. Morris Fishbein, Editor of *The Journal* of the American Medical Association, and Dr. R. G. Leland, Director, Bureau of Medical Economics, American Medical Association. The broadcast will be from 1 to 2 p. m., Central Standard Time, Tuesday, November 12.

While physicians have probably studied this question more fully than any other group there will doubtless be brought out in this broadcast many points with which the average physician is not conversant. The selection of the topic for debate by this organization is indicative of the lay interest in the subject and makes it imperative that physicians understand fully the possibilities and problems in this trend of thought and action.

NEWS NOTES

Dr. J. R. Bruce, Marshfield, has been appointed county health commissioner of Webster County. Dr. Bruce has been serving as county physician.

Dr. J. Curtis Lyter, St. Louis, was the guest of the Black Hawk County (Iowa) Medical Society at Waterloo, Iowa, September 24, and

spoke on "The Pathological Physiology, Diagnosis and Treatment of Angina Pectoris of Effort."

Dr. J. W. Thompson, St. Louis, addressed the regional meeting of the American College of Physicians at Springfield, Illinois, recently. His subject was "Surgical Treatment of Gastric and Duodenal Ulcer."

Dr. O. P. J. Falk, St. Louis, was the guest of the Marion County (Illinois) Medical Society at Centralia, Illinois, September 29, and gave a talk on "Prognosis and Treatment of Coronary Disease."

Dr. J. C. Minor, Kansas City, for forty years an active practitioner in Kansas City, is retiring from practice and he and his wife will move to Glendale, California. Dr. Minor was among the first physicians in Kansas City to specialize in proctology.

The Saline County Medical Society has changed its meetings from monthly to quarterly because of the meetings of the staff of the Fitzgibbon Hospital which are held monthly. The membership of the two organizations is the same.

Dr. Thomas Fitz Hugh, Philadelphia, associate professor of clinical medicine in the University of Pennsylvania School of Medicine, spoke on "Recent Advances in Clinical Hematology" before the Kansas City Academy of Medicine on October 18.

The Trudeau Club of St. Louis will meet November 7 at 8:30 p. m. in the St. Louis Medical Society Building. The scientific program will consist of a talk by Dr. J. J. Singer, St. Louis, on "Report of Chest Service in England," and one by Dr. H. I. Spector, St. Louis, on "New Classifications of Silico-Tuberculosis." Members of the medical profession are invited to attend.

Dr. Sam Snider, Kansas City, conducted a tuberculosis clinic at Poplar Bluff on September 27 assisted by physicians and nurses of Poplar Bluff. Roentgen rays of children who had reacted to tuberculin tests were read by Dr. Snider and forty-seven adult chest examinations were made. The clinic was conducted under the auspices of the county tuberculosis society. Dr. Snider was a guest of the Lions Club at a luncheon and of the Butler County Medical Society at a dinner meeting.

The American Board of Otolaryngology will hold an examination in Kansas City, Missouri, May 9, 1936, preceding the meeting of the American Medical Association, and in New York City in October, 1936, just prior to the meeting of the American Academy of Ophthalmology and Otolaryngology, the exact date not having been set. Prospective applicants for certificates should address the secretary, Dr. W. P. Wherry, 1500 Medical Arts Building, Omaha, Nebraska, for application blanks. An examination was held in Cincinnati, Ohio, September 14, 1935. Fifty-seven candidates were examined out of which number forty-two were certified and fifteen conditioned.

The Southeast Missouri Medical Association held its fifty-ninth annual meeting at Ste. Genevieve on October 9 and 10. Dr. C. E. Fallet, De Soto, president, was in the chair. Among those appearing on the program were Drs. Sylvester Doggett, C. A. W. Zimmermann and Glen J. Tygett, Cape Girardeau; M. L. Cone, Campbell; Julius A. Rossen, James F. McFadden and John D. Hayward, St. Louis; John F. Rutledge, Crystal City; P. S. Tate, Farmington; Frank E. Jones, Gideon; E. J. Nienstedt, Blodgett; U. A. V. Presnell and Paul Baldwin, Kennett, and Howard A. Dunnaway, Sikeston.

Dr. P. S. Tate, Farmington, was installed as president. Dr. Samuel E. Mitchell, Malden, was elected president-elect; Dr. W. Harry Barron, Fredericktown, was elected vice president; Dr. Paul Baldwin, Kennett, was reelected treasurer and Dr. R. C. Kitchell, Sullivan, and Dr. John D. Van Cleve, Malden, were reelected recording and corresponding secretaries, respectively.

An examination for entrance into the Reserve Corps of the United States Public Health Service in the grade of Assistant Surgeon is announced to be held November 18. Applicants must not have passed their thirtieth birthday. They must be graduates of a reputable medical school and have completed at least one year internship or its equivalent. Successful candidates will be ordered to active duty in the Reserve Corps in which it is expected that vacancies will occur soon after January 1, 1936, and will be eligible for examination for entrance into the regular commissioned corps when such examinations are held, provided they have not passed their thirty-second birthday. Boards will be appointed in various cities throughout the United States so as to avoid as much travel as possible which, if necessary, must be made at the candidate's own expense. Persons desiring permission to take this examination should make request to the Surgeon General, United States

Public Health Service, Washington, D. C., for the necessary blanks and other information.

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Abbott Laboratories

Procaine Hydrochloride-Abbott Tablets, 1.14 grains (0.07 Gm.)

Procaine Hydrochloride-Abbott Tablets, 2.28 grains (0.15 Gm.)

Ampoules Bismuth Subsalicylate with Butyn—D. R. L., 1 cc.

Robert A. Bernhard

Saf-T-Top 5 per cent Ferric Chloride in 50 per cent Glycerine, 2 cc. and 15 cc.

Saf-T-Top Isopropyl Alcohol, 98 per cent, 2 cc. and 15 cc.

Saf-T-Top Mercurochrome 2 per cent Solution, 15 cc.

Saf-T-Top Mercurochrome 2 per cent in 25 per cent Glycerine, 2 cc. and 15 cc.

Saf-T-Top Tincture Metaphen, 2 cc. and 15 cc.

Lee Laboratories

Rabies Vaccine, Semple Method (Lee)

Lederle Laboratories, Inc.

Scarlet Fever Streptococcus Antitoxin, "Globulin-Lederle-Modified"

Refined Diphtheria Toxoid (Alum Precipitated)—Lederle, 0.5 cc. vial packages

Wm. S. Merrell Co.

Viosterol in Oil—Merrell, Sperti Process

Ampules Diothane 0.5 per cent in Solution of Sodium Chloride 0.6 per cent, 6 cc.

Winthrop Chemical Co., Inc.

Salvarsan, 1.2 Gm. tubes

The following products have been accepted by the Council for inclusion in the List of Articles and Brands Accepted by the Council But Not Described in New and Nonofficial Remedies (1935, p. 445):

Robert A. Bernhard

Saf-T-Top Tincture Iodine, U. S. P., 2 cc. and 15 cc.

Saf-T-Top Tincture Iodine, U. S. P. 3½ per cent, 2 cc. and 15 cc.

OBITUARY

PAUL RANDOL WILLIAMS, M.D.

Dr. Paul Randol Williams, Cape Girardeau, a graduate of St. Louis University Medical Department, 1912, died in St. Mary's Hospital, St. Louis, August 7, of intestinal obstruction. He was born at Kelso, Mo., July 13, 1888.

He attended the parochial school at Kelso during the early years of his life, later attending the Southeast Missouri Teachers College, Cape Girardeau, where he was graduated in 1907. His father, Dr. Phil Williams, was engaged in the practice of medicine first at Kelso, later moving to Cape Girardeau in order to secure better educational facilities for his children.

Following his graduation from medical school Dr. Williams interned for one year at St. Margaret's Hospital at Hammond, Indiana. Following his internship he engaged in general practice at Hammond for one year then moving to Cape Girardeau where he was associated with his father. Here he remained until his death. His father preceded him in death September 1, 1932. This association was a very happy one and the devotion shown between father and son was remarkable to all that knew them.

In 1924 Dr. Williams did postgraduate work in pediatrics at Washington University. In 1925 he did special work in pediatrics at Memorial Hospital, Chicago, and in 1927-28 he did postgraduate work in the same specialty at the Post Graduate Hospital, New York. During the World War he served in a field hospital, being attached to the 89th Division and later served with the Army of Occupation. He was discharged at the end of this service with the rank of Captain.

He was active in civic affairs of his home town. He was a charter member of the Lions Club and was its second president. He belonged to the several Masonic orders and in addition was a member of the Scottish Rite and Shrine of St. Louis. For many years preceding his death he served as a deacon of the First Baptist Church.

He was a member of the medical staffs of St. Francis and Southeast Missouri hospitals, the Cape Girardeau County Medical Society, the Missouri State and American Medical associations.

On April 30, 1923, Dr. Williams married Miss Gladys Roberts of Columbia. To this union three children were born, Paul Randol aged 10, Mary Victoria aged 6 and Robert Thomas aged 5, who survive him. His mother, Mrs. Mary S. Williams, also survives him.

True devotion to his practice and the happiness of his home were outstanding characteristics of Dr. Williams. His patients came from all over southeast Missouri and every one was his friend. His chief concern was to give them relief which he did many times at the expense of his own health.

The love and esteem in which he was held was beautifully exemplified by all classes that gathered to pay their last tribute at his funeral.

Dr. Williams was a conscientious practitioner of medicine and one who upheld the honor and dignity of the profession. His passing was a distinct loss to the medical profession as well as the community as a whole.

JOHN JOSEPH DORSEY, M.D.

Dr. J. J. Dorsey was born and spent his childhood days in Oswego City, New York. His collegiate work was done at Holy Cross College, Worcester, Massachusetts, and he was graduated from the Medical Department of Columbia University in the year 1907. After an internship and residency at St. Vincent's Hospital, New York City, he satisfied a long desire to move West and went to Kansas City.

He soon became interested in industrial surgery and was one of the first doctors in the community to make this type of medical work his specialty. His ability in caring for these severely injured patients was recog-

nized by his fellows and his counsel was frequently sought.

A great interest was shown by him in preventive medicine, particularly in its relations to safety first methods about the industrial plants with which he was connected.

Dr. Dorsey was very blunt and outspoken, very strong in his likes and dislikes. Loyalty to his friends, who were many, was an outstanding trait. Although he was ill for many months preceding his death, he continued to carry on. His passing is a signal loss to the profession and to the community.—M. B. S. in the *Jackson County Medical Journal*.

HENRY LINCOLN WOLFNER, M.D.

Dr. Henry L. Wolfner, St. Louis, a graduate of the Missouri Medical College, 1881, died July 11, aged 75.

Endowed with an unusually high degree of intellect, he was a keen observer, quick of understanding, and possessed a long-headed sound judgment and common sense. Not satisfied with the learning acquired under a master ophthalmic surgeon, the late Dr. Charles E. Michel, his teacher, he pursued his eye studies in England and on the Continent under the then leading eye specialists of the world, returning to practice his profession in St. Louis as well prepared as the very best.

Dr. Wolfner served at various times on the staffs of the Polyclinic, Bethesda, St. Vincent's and Jewish hospitals. Many attended his clinics and lectures at the old Polyclinic, Post Graduate School and Missouri Medical College where he served as instructor and later as professor of clinical ophthalmology at the Washington University School of Medicine.

In practice none, rich or poor, was ever denied the benefit of his sound advice, judgment and sweet gentle personality. Those who were fortunate enough to profit through daily close association with him recall his benevolent and kindly spirit, the total absence of envy, jealousy or resentment, his graciousness and disinterested concern in the welfare of his patients with, at all times, a total submergence of self.

His public spirit and manifest desire to serve was exemplified during the nine years' service, first as a member, then as president of the Board of Education. His constant worry and thought was that he be properly and wisely guided in an endeavor to always act for the greatest good.—M. W. in the *Bulletin* of the St. Louis Medical Society.

ALLEN BENSON CLARK, M.D.

Dr. A. B. Clark, Joplin, a graduate of the University of Ohio Medical School, Columbus, 1890, died September 15 of apoplexy, aged 70.

Dr. Clark was born near Pleasant City, Ohio, and received his early education in that vicinity. He taught school for three years before he began the study of medicine. After receiving his medical degree he began his practice in Joplin. A short time later he moved to Zincite, then to Carl Junction but returned to Joplin in 1906 and established his permanent home and practice. During his residence in Carl Junction he served a two-year term as mayor.

Dr. Clark would have completed a four-year term as health commissioner of Joplin next April. Aside from his wide acquaintance as a physician he was well known as a public school official having served for ten years on the board of education.

He was active in the Jasper County Medical Society and served as delegate and alternate at a number of Annual Sessions.

Dr. Clark has been ill for a month having suffered a stroke of apoplexy from being overheated but responded to treatment. He was thought to be convalescing when the fatal second attack occurred.

He is survived by his widow, Mrs. Jennie D. Clark, three sons and two daughters.

CHARLES HARVEY CHRISTIAN, M.D.

Dr. C. H. Christian, Fulton, a graduate of Washington University School of Medicine, 1890, died at his home of arteriosclerosis, May 9, aged 74.

Dr. Christian was born in Barry County, Missouri, the son of the late Dr. William Columbus Christian. His parents moved to Fulton during the Civil War and his father practiced there for several years then moved to Guthrie and New Bloomfield, Missouri. When Dr. C. H. Christian had completed his medical education he succeeded his father at Guthrie and New Bloomfield but later moved to Fulton.

Dr. Christian took his academic work at Westminster College at Fulton and served an internship in the St. Louis City Hospital. He did postgraduate work in the New York University School of Medicine.

He was a member of the Callaway County Medical Society and served as president in 1931 and 1932 and as alternate delegate in 1933. He was prominent in the work of fraternal orders in Callaway County.

Dr. Christian was well acquainted throughout the county and state. He will be remembered by many not only because he ministered to them in their illnesses but because of the happy and genial atmosphere which his presence radiated. He was held in high esteem by all who knew him.

He is survived by six children, one grandchild, two brothers and one sister.

TOTAL THYROIDECTOMY FOR INTRACTABLE HEART DISEASE: SUMMARY OF TWO AND ONE HALF YEARS' SURGICAL EXPERIENCE

An evaluation of the clinical results that David D. Berlin, Boston (*Journal A. M. A.*, Oct. 5, 1935), obtained in those patients who were operated on from one to two and a half years ago reveals that of thirty-six patients with angina pectoris 50 per cent have been markedly improved. In this category are included patients who were previously incapacitated and were sufficiently relieved by operation so that they no longer required medication and were able to return to work. In an additional 17 per cent the attacks of coronary pain were diminished in frequency and severity. The improvement in this group is classified as moderate. The results in patients with congestive failure are equally satisfactory. Approximately 70 per cent derived a degree of improvement which was greater than that obtained by adequate medical therapy prior to thyroidectomy. Of these totally incapacitated cardiac patients 38 per cent were markedly benefited by operation to the extent that they were able to undertake, without circulatory embarrassment, activity such as had been previously denied them. An additional 31 per cent showed a moderate increase in their capacity for work without recurrence of failure. Approximately 30 per cent of the patients suffering from either angina pectoris or congestive heart failure showed little or no improvement following operation. The results of this group emphasize the need of utmost care and caution in the selections of patients for operation.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1935

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

- Ste. Genevieve County Medical Society,
December 12, 1934.
Chariton County Medical Society, Janu-
ary 3, 1935.
Perry County Medical Society, January 4,
1935.
Moniteau County Medical Society, Janu-
ary 10, 1935.
Camden County Medical Society, Febru-
ary 26, 1935.
Schuyler County Medical Society, March
18, 1935.
Lewis County Medical Society, April 2,
1935.
Holt County Medical Society, April 18,
1935.
Lincoln County Medical Society, April 18,
1935.
Pike County Medical Society, May 15,
1935.
Saline County Medical Society, May 21,
1935.
Benton County Medical Society, July 9,
1935.

GREENE COUNTY MEDICAL SOCIETY

The Greene County Medical Society met September 27 in the Springfield Public Library with thirty-eight present. Visitors included Drs. M. R. King and R. L. Russell, Springfield; W. M. West and L. H. Ferguson, Monett; E. G. Beers, Seymour; Dr. Smith, of Miller, and Harvey J. Howard, Alphonse McMahon and Daniel L. Sexton, St. Louis.

The scientific program was as follows:

"The Practice of Modern Medicine in Its Relation to Ophthalmology," by Dr. Harvey J. Howard, St. Louis.
"Common Disturbances of the Heart," by Dr. Alphonse McMahon, St. Louis.

"Newer Endocrine Therapy," by Dr. Daniel L. Sexton, St. Louis.

The papers were interesting and profitable both to the specialist and the general practitioner. After considerable discussion the meeting adjourned.

J. NEWTON WAKEMAN, M.D., Acting Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society met September 24 at the Connor Hotel at 8 p. m. in conjunction with the dentists of Joplin.

A letter from the Joplin Retail Credit Association was read stating that representatives of that association desired to meet with the doctors and dentists and discuss helping them with their collections and contracts with their patients. The letter pointed out that the association was familiar with the people of the district and had contact with credit bureaus in other communities and therefore they felt better able to take care of these accounts than a local set-up by the doctors and dentists.

A report was made by Dr. R. M. James, Joplin, chairman of the nominating committee, stating that he thought it premature for such a committee to officiate and that it better to organize the Medical and Dental Bureau before such nominations were in order. Dr. James read an article from the St. Louis *Star* telling of the progress made in St. Louis in organizing a similar institution there. He also read a letter from Mr. E. H. Bartelsmeyer stating that he would be glad to help in any capacity necessary to stimulate formation of a Joplin Medical and Dental Credit Bureau.

Dr. Brown reported on a letter he had received from the president of the Missouri Dental Society stating that the St. Louis Dental Society had accepted the plan.

The plan of organization as outlined in the *Bulletin* of the St. Louis Medical Society was read by the secretary.

Dr. R. M. James made a motion that a committee of five or more composed of doctors, dentists and hospital representatives be appointed to formulate a plan and submit as soon as possible. Seconded by Dr. Frank Windle and carried.

The president stated he would take the motion under advisement and appoint a committee at an early date.

Dr. W. S. Loveland, Joplin, suggested that the Society have a symposium on cancer at one of the early fall or winter meetings.

J. W. HARDY, M.D., Secretary.

RANDOLPH-MONROE COUNTY MEDICAL SOCIETY

The Randolph-Monroe County Medical Society met in the Public Library Building, Moberly, September 10. An invitation from the newly formed Mississippi Valley Medical Association was read and discussed.

Members were urged to attend the meeting of the Ninth Councilor District at Columbia, September 17.

The scientific program consisted of a talk by Dr. George H. Hoxie, Kansas City, on "The Clinical Aspects of Early Tuberculosis," and one by Dr. Everett R. DeWeese, Kansas City, on "The Roentgenological Aspect of Early Tuberculosis." These talks were followed by the demonstration and discussion of about twenty-five chest radiograms made of persons in the community through the Randolph County Tuberculosis Association.

The following guests and members were present: Drs. George H. Hoxie and Everett R. DeWeese, Kansas City; M. C. McMurry, Paris; J. P. Allen, Cairo; C. C. Smith, L. O. Nickell, G. B. Bowers, L. E. Huber, O. K. Megee, C. H. Dixon, R. D. Streeter and M. E. Kaiser, Moberly.

MAX E. KAISER, M.D., Secretary.

SALINE COUNTY MEDICAL SOCIETY

The Saline County Medical Society held its regular quarterly meeting in Marshall, September 18, at the Fitzgibbon Memorial Hospital, Dr. C. L. Lawless, Marshall, president, in the chair. There were twelve members present.

Drs. R. W. Kennedy and E. A. Belden, Marshall, were appointed a committee on tuberculosis to work with the county tuberculosis association on a survey of tuberculosis among school children.

Dr. D. F. Manning, Marshall, gave a summary of the Ninth Councilor District meeting in Columbia, September 17. Seven members of the Saline County Medical Society attended the meeting.

Dr. L. S. James, Blackburn, delegate to the Annual

Session of the State Association gave a brief but inspiring report on the proceedings.

Dr. J. R. Lawrence, Marshall, gave a talk on "Skin Casts" with a clinical demonstration.

E. A. BELDEN, M.D., Secretary.

SOUTH CENTRAL COUNTIES MEDICAL SOCIETY

The South Central Counties Medical Society met at Houston, September 26, with the following members and visitors present: Drs. W. F. Herron and L. M. Dillman, Houston; R. B. Tilley, Plato; E. C. Bohrer, A. H. Thornburgh and J. W. Bingham, West Plains; J. C. B. Davis, Willow Springs; R. W. Denney and A. C. Ames, Mountain Grove, and the speakers, Drs. A. H. Conrad, R. S. Weiss and M. F. Engman, Jr., St. Louis.

The program opened at noon with a dinner at the Orchid Cafe followed by a skin clinic at Dr. Harron's office at which a number of interesting cases were examined and discussed. Some of the patients had come as far as forty miles to be examined.

The scientific meeting was called to order at the Melba Theater by the president, Dr. A. H. Thornburgh.

The president appointed Drs. P. D. Gum, J. C. B. Davis and A. C. Ames to draft resolutions of sympathy and send to the family of the late Dr. D. D. Cox, Pomona.

Dr. A. H. Conrad, St. Louis, spoke on "The Common Drug Eruptions." Dr. R. S. Weiss, St. Louis, on "The Precancerous Skin Lesions" and Dr. M. F. Engman, Jr., St. Louis, on "Contact Dermatitis."

A general discussion followed and the speakers answered many questions.

An expression of thanks and appreciation was given the speakers.

The meeting adjourned to meet at Cabool in November.

A. C. AMES, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

14th Annual Meeting, Kansas City, 1936

President, Mrs. Rogers N. Herbert, Nashville, Tennessee.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

12th Annual Meeting, Columbia, 1936

President, Mrs. M. Pinson Neal, Columbia.

President-Elect, Mrs. W. C. G. Kirchner, St. Louis.

Adviser, Dr. J. F. Harrison, Mexico.

The social calendar for the women whose husbands attended the 13th annual meeting of the Kansas City Southwest Clinical Society in Kansas City, October 7-10, included a tea at the home of Mrs. Raymond Teal; a theater party; a luncheon at the Woman's City Club; a gallery walk at the William Rockhill Nelson Gallery of Art, and a banquet. Out-of-town visitors were guests at an especially arranged broadcast of WDAF at which Mrs. David S. Long, Harrisonville, chairman of Public Relations of the Woman's Auxiliary to the American Medical Association, spoke on "The Doctor's

Wife." The general chairman of the social activities was Mrs. J. V. Bell, Kansas City. The committee chairmen were Mrs. Harry C. Berger, Mrs. Radford F. Pittam, Mrs. Herbert S. Valentine, Mrs. L. P. Engel, Mrs. Harold P. Kuhn, Mrs. J. Milton Singleton, Mrs. Wilbur A. Baker and Mrs. J. E. Castles.

Mrs. A. B. McGlothlan, past president of the Missouri Auxiliary and the National Auxiliary, attended the Mobilization of Human Needs Conference in Washington. Mrs. Roosevelt appointed Mrs. McGlothlan a member of the National Women's Committee and chairman of Missouri.

The Jackson County Auxiliary had a luncheon meeting on October 4 at the home of Mrs. Clarence S. Capell with one hundred and twenty-five members present. Mrs. C. C. Dennie spoke on "A Sailing Trip to Rio."

The fall board meeting of the Woman's Auxiliary was held on October 17 at the Pennant Hotel in Columbia with the president, Mrs. M. Pinson Neal, presiding. Matters pertaining to the year's work were discussed and constructive plans made.

The October number of the Quarterly *Bulletin* of the Missouri Auxiliary has been issued.

While watching with intense interest the splendid progress of medical science together with its ever new and startling discoveries we forget the great founders of this noble work, the pioneer physicians. In order to acquire a knowledge and thereby instill into the hearts of our Missouri youth a love for their own great men in this field of fields the Woman's Auxiliary of the Missouri State Medical Association is sponsoring its fourth annual essay contest under the title "Pioneer Physicians of Missouri."

Contestants: (a) Pupils in the senior high schools, (b) pupils in the junior high schools.

Length of Essays: (a) Senior high schools, 850 to 1,000 words; (b) junior high schools, 700 to 850 words.

Rules: (1) The contest opens October 1, 1935, and all essays must be received by the Chairman of the Essay Contest by April 1, 1936. (2) Each contestant must certify at the end of the essay that the material presented represents individual and personal work. (3) Bibliographical references for material quoted must be submitted with and as part of the manuscript.

Prizes: Each county or city auxiliary will give the prizes for its own contests. The State Auxiliary will award the following prizes: Senior high schools, first prize \$10, second prize \$5; junior high schools, first prize \$10, second prize \$5.

Reference Material: (a) "One Hundred Years of Medicine and Surgery in Missouri," St. Louis *Star*. (b) "A History of Medicine in Missouri," E. J. Goodwin. (c) "Triumphs of Medicine," H. S. Hartzog, Jr. (d) "History of Medicine," Fielding H. Garrison. (e) "A Short History of Medicine," Charles Singer. (f) "Medicine," M. J. Seelig.

Judges: The judges of the State Contest shall be Mrs. M. Pinson Neal, Columbia, President, Woman's Auxiliary to Missouri State Medical Association, and two others appointed by Mrs. Neal.

For further information regarding the above contest write to the Chairman of the Essay Contest, Mrs. John O'Connell, 10300 Lackland Road, Overland, Missouri.

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CHRONIC PYELONEPHRITIS IN INFANTS AND CHILDREN

JOHN R. CAULK, M.D.

ST. LOUIS

Among the triumphs of scientific urology the mastery of the urinary tract in infants and children is outstanding. Little did the physician of a few decades ago dream that in such a relatively short time the depths of these organs would be probed with instruments introduced through the normal excretory channels, nor that their physiological activities and pathological derangements would be revealed by the penetrating roentgen ray, supplemented by the administration of opaque dyes.

The development and perfection of instruments of small caliber, the striking tolerance of infants and children to instrumentation when judiciously performed and the cooperation of the pediatrician in seeking special investigation of the urinary organs in children, create a trinity designed to exert a tremendous influence in the development of infantile and juvenile urology.

The sole function of the excretory ducts of the urinary tract is to deliver the accumulated urine without impediment. Unfortunately, obstructive conditions along the urinary pathways are exceedingly frequent and take as their points of predilection the normal physiological constrictions, viz.: (1) The uretero-pelvic juncture; (2) the intravesical ureter and (3) the internal orifice of the bladder (most frequent).

Stasis is a natural accompaniment of such obstructive conditions. The problem therefore resolves itself into one of hydrodynamics. As a result of stasis, infection is a natural expectation. These obstructive uropathies in infants contribute tremendously to infant mortality and should always be suspected in unexplainable cases of malnutrition, particularly if associated with urinary

difficulties. Such suspicion may be confirmed by a determination of the nitrogenous constituents in the blood. If these are decidedly increased, a prompt urological investigation should be undertaken and the cause which is usually obstruction should be removed at the earliest possible moment. Bugbee and Wollstein found 117 congenital lesions of the urinary organs in infants in reviewing 4903 necropsies performed at the Babies Hospital in New York. Fifty per cent of these were due to some form of congenital obstruction. Thus 1.2 per cent of all the infant mortality occurred as a result of obstruction either with or without infection.

Urinary infections in children are strikingly frequent. In the St. Louis Children's Hospital one in every forty children either had such infections upon admission or developed them during the course of their stay. The majority of these were acute, the so-called acute pyelitis, usually secondary to some focal lesion elsewhere; the most common of these were middle ear, nasopharyngeal, pulmonary, intestinal or vaginal. Many of these acute conditions are cured following the relief of focal infections and the administration of urinary antiseptics and copious flushings. Such relief usually requires from one to three weeks. Urology at the present time is not serving its proper function with this type of acute kidney infection. Prompt ureteral catheterization with evacuation of the pelvic contents followed by topical applications, as is currently employed in the adult, should be administered to protect the kidney substance from the ravages of infection squeezed back through it from the overcrowded pelvis which is incapable of emptying itself. The inability of the pelvis to evacuate its contents properly is in most instances not due to a preexisting stricture but results from the acute inflammatory reaction with edema at the ureteropelvic juncture secondary to renal infection itself, a self-engendered obstruction. The longer the septic contents

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are allowed to remain permeating the delicate structural mechanism of the kidney, such a vital organ to human economy, the more is the likelihood of late scarring and irreparable damage with the formation of the framework of chronic lesions, chronic recurrent pyelitis and stone formation for years to come. In a personal communication with one of my confreres, Dr. Drennan, who is consultant at a reformatory for boys in the State of Illinois, I am informed that the presence of unsuspected pus and infection in the urine and of albuminuria and hypertension are exceedingly common and in almost every instance there has been a preceding history of pyelitis in infancy.

The chronic infections of the kidney are the ones which the urologist usually observes and those which have resisted the orthodox medical administrations. These are the children who persistently harbor urinary infection and who are never in good health or are subjects of intermittent recurrent attacks of urinary infection with febrile reactions. In both instances some mechanical obstruction previously alluded to is usually the cause and must be investigated. The persistence of medical treatment to these chronic infections was formerly due to lack of familiarity with the causative factors and to the failure of urology in offering material aid. At present, however, the remarkable curative results obtained through conservative surgical measures predicts a brighter future for such afflicted subjects.

The clinical picture resulting from obstructions in the different portions of the urinary system may be very similar and the general physical signs may appear misleading. For instance, a child may present a large tender kidney and the whole symptom-complex revolve around this one organ; and yet the cause of this may be an obstruction in the lower urinary tract with both ureters and kidneys involved and only one manifesting the disease.

For practical purposes and as an aid to the clinician there are certain simple diagnostic procedures which may be helpful, viz.:

1. The determination of total renal function by tests of elimination, such as phenol-sulphthalein or through tests of retention secured through a determination of the blood for its nitrogenous elements. If the total functional capacity is low, as indicated by these tests, one may be assured that both kidneys are involved regardless of the palpable evidences.

2. The determination of the presence or absence of residual urine is important. If residual urine is present it is highly indica-

tive that the condition results from obstruction at the internal orifice of the bladder and the renal lesion is in all probability bilateral.

3. The cystogram may afford valuable information in revealing the topographical outline of the urinary system. If upon filling the bladder there is a regurgitation up the ureters the fundamental lesion is at the bladder neck.

4. Intravenous urography may be serviceable in delineating the outline of the urinary system but in my experience it has not been entirely reliable. I have seen it demonstrate a normal pelvis when pronounced hydronephrosis was present; and it is usually impossible to determine whether a dilatation of the ureter results from retention of excretion or regurgitation.

5. Cystoscopic investigation of the urinary tract is usually necessary before any definite plan of corrective therapy may be satisfactorily applied; and it is indeed gratifying that children tolerate cystoscopic manipulation so admirably. Reactions are seldom observed; indeed, they occur far less frequently than with the adult if the child is properly prepared. The infant or child with high residual urine and uremia requires the same special preliminary catheter drainage before such procedures are undertaken as is commonly employed in the adult. In hundreds of children whom I have examined there has been but one serious reaction and this occurred many years ago in a child who was suffering from double chronic pyelitis without obstruction. Anesthesia is required in only 35 per cent of the cases. If one is patient with these children, secures their confidence and allows the mother to be present with them during the examination there is seldom any difficulty in making a complete urological investigation, even in very young children, without general anesthesia; and if general anesthesia is necessary it is only applied for a few moments during the instrumentation and should be removed as quickly as possible for functional studies and pyelographic determinations. The three to one preponderance of girls over boys minimizes the necessity for general anesthesia but even in very young boys such manipulations may frequently be consummated under local anesthesia.

Obstructions at the ureteropelvic juncture are the least frequent but most destructive. Large hydronephroses or pyonephroses are the inevitable result. They are often bilateral, one side being more pronounced than the other. They are less influenced by dilatations and require either nephrectomy or some plastic surgical procedure. A two-

stage nephrectomy is usually necessary for the large pyonephrotic kidneys. The preliminary drainage allows the child to be relieved of sepsis and the secondary operation is not complicated if performed within a reasonable time. The most frequent causes of such lesions at the ureteropelvic juncture are congenital strictures and aberrant vessels, the latter offering the best chance for recovery by simple ligation of the vessel which is obstructing. For ureteropelvic stricture with extrarenal hydronephrosis, with or without infection and with preservation of renal cortex, I have found the resection of the ureter with excision of the stricture and resection of the renal pelvis with reimplantation of the ureter into the dependent part of the pelvis to be the most satisfactory surgical procedure. The ureter is united to the pelvis over a soft rubber catheter splint which is brought back through the renal cortex for drainage and passed well down the ureter. Into this catheter splint numerous openings are made to allow for drainage and very few sutures are placed at the line of union; simply enough to insure stability. These should be fortified by traction sutures placed a good distance above and below the line of union. The kidney pelvis is freely drained through the cortex by a large catheter.

Obstructions at the intramural ureter are susceptible to dilatation with the catheter and many are cured in this way. Others, of a more sclerotic nature, seem best treated by the transposition operation which I described in 1919. This operation is an intravesical one requiring little manipulation and dissection. The intravesical ureter which is sclerotic and often like a pipe stem is excised from its vesical bed but its attachment at its entrance to the bladder wall is allowed to remain. This seems far superior to a ureterovesical anastomosis which is almost invariably attended by contracture, hydronephrosis and ultimate renal death.

The most common cause of chronic pyelitis in infants and children is obstruction at the internal orifice of the bladder resulting from congenital valves or contractures. I wish to report a series of 26 cases of such obstructions:

REPORT OF CASES

Age

Under 2, 5 cases
2 to 5, 9 cases
5 to 10, 8 cases
Over 10, 4 cases

Sex

Males, 14
Females, 12

Symptoms and Physical Findings

Frequency, 13 to 50 per cent
Difficulty, 8
Incontinence, 13 to 50 per cent
Pain and burning, 7
Hematuria, 1
Pyuria and Pyelitis, 18 to 69 per cent
Renal colic, 3
Uremia, 8 to 30 per cent
Enlargement of kidney, 6 (5 unilateral, 1 bilateral)
Residual urine, 21 to 80 per cent
 Over 100 cc., 12
 Over 500 cc., 3
 No residual, 2
 No note, 3

The conditions found at the vesical neck in this series of cases were as follows:

Contracture of the neck, 9 (4 boys, 5 girls)
Valves, 12 (6 boys, 6 girls)
Valve and lobule, 1 (boy)
Valve and bar, 1 (girl)
Villous mass and valve, 2 (boys)

Associated Conditions

Relaxation of sphincter, 6
Trabeculation, 10
Diverticulum, 3
Spina bifida, 5
Calculus, 2
Epispadias, 1
Double ureter, 3
Regurgitation, 12
 Bilateral, 8 (11 of the 12 cases of regurgitation were infected)
 Right, 2
 Left, 2

Regurgitation With Residual Urine

Over 200 cc., 6
Small residual urine, 6
With valves, 5
With contracted neck, 7

The importance of regurgitation of the vesical contents into the ureters and kidney pelvis cannot be overestimated. It was present in these cases in 46 per cent. One half of these occurred in the presence of a high residual urine, the remaining half with small residuals. It is evident therefore that the presence of a high residual is not essential for the creation of such regurgitation. Stiffening and retraction of the ureterovesical valve resulting from infection is fundamental. I have observed in several patients who before operation had large regurgitant ureters from incompetency of the ureteral valve, that after the relief of obstruction and subsidence of infection the valves become competent and regurgitation did not occur.

Operations.—Operations were performed on sixteen of these children, fourteen cautery punches and two suprapubics; six were for valves, one for valve and bar, seven for contractures of the vesical neck and two for lobules. The child's punch was used in nine instances and the baby punch in five.

Preliminary Treatment.—All these little patients, who carried residual urine and who showed evidence of urosepsis, were treated in a manner similar to the prostatic by preliminary indwelling catheter drainage, copious flushings and urinary antiseptics, often-times by the administration of subcutaneous saline and intravenous glucose and occasionally by transfusions until their condition appeared sufficiently satisfactory for any type of surgical operation. This type of preliminary treatment is just as important in children as it is to the prostatic. The operation is never performed until the nitrogen has become normal, the febrile reaction has subsided and the general appearance of the child is good.

Technic of Operation.—The punch with its obturator is passed into the bladder which has been previously filled with sterile water or boric. In the infants, the baby punch, a 14 French size, is used and in larger children the child's punch, a No. 18 instrument, is employed. Following the introduction of the instrument the obturator is removed and the instrument gradually withdrawn until the water ceases to flow. One is then assured that the vesical orifice is within the slot of the instrument. Previous cystoscopic examination has determined the exact nature of the obstruction; if it is a contracture of the neck, the slot of the instrument is brought out in the midline below. The eye piece of the instrument is slightly elevated, steadily securing the obstructing orifice within the slot, the tube is evacuated and dried with a cotton pledget, the orifice is visualized by reflected light and the working element carrying the cautery blade is passed through the sheath of the instrument until it engages the obstruction; the heat is then turned on and by a rotary motion the obstructing band is punched out. The instrument is then removed unless further removal is deemed advisable. At times three bites are removed, seldom more. In case more bites are required the instrument is reinserted into the bladder, water allowed to flow, orifice grasped again lateral to the previous bite at 5:00 to 7:00 o'clock on the dial and the procedure repeated.

In cases of valves, which are always lateral, the instrument is inserted in the same manner but the slot of the instrument is pressed toward the side from which the operator expects to remove a central section of the band, the eye piece of the instrument passing in the opposite direction until one appreciates a hang and the water ceases to flow. The same process of removal is un-

dertaken. Usually in the valve cases only two incisions are necessary, one on each lateral valve. In none of these cases operated upon by the punch has there been the slightest bleeding. A small indwelling catheter is inserted for 24 hours. There has never been a postoperative hemorrhage and in only one instance was there the slightest febrile reaction. These children have tolerated such operations much better than the adult. No complications have occurred. The operation is of course delicate and heavy pressure must not be exerted for fear of cutting too deeply. With light cauterization there is no danger of deep penetration of heat with the creation of slough beyond the field of operation. The high frequency current as a means of resection would be extremely dangerous in tissue so thin and delicate.

The after-care consists in accurate supervision, daily passing the catheter for vesical instillation of some mild germicidal solution and for the determination of the emptying ability of the bladder. If the bladder empties completely all instrumental manipulation ceases. If some residual remains as a result of edema, catheterization and instillation continue until it entirely disappears. If within ten days the urinary function is not normal and residual is still present the child is reexamined and another operation performed. This has only been necessary in two instances.

The two suprapubic operations were performed a number of years ago before the baby punch was perfected and would not be necessary at the present day. Since these obstructive conditions in children are either from contractures or valves there should seldom if ever be the necessity for an open operation for their removal.

Results.—Thirteen of the operations have given perfect results. Two were decidedly improved but not completely satisfactory. The parents refused to allow further surgical procedures. One case was not improved. This was a patient with pronounced spina bifida with a very thin delicate valve. The removal of the valve gave no benefit.

The results following the removal of the obstruction through the urethra in children by means of the punch have been the most gratifying I have ever had in surgery. The end results have been so satisfactory, invalid children have been restored to excellent health by such a simple procedure with practically no complications or untoward effects and with no mortality. There have been several cases so striking in this series that they are worthy of special mention.

REPORT OF CASES

Case 1. A boy 9 years of age had a meningocele removed when a baby. The local result was excellent but he had been incontinent all his life and had worn a rubber urinal. Numerous urologists whom his family consulted in his behalf expressed the opinion that the bladder incontinence was due entirely to the nerve lesion. When I examined this child he had a typical neurogenic bladder; that is, a markedly relaxed internal sphincter which allowed visability of the whole posterior urethra. There were 8 ounces of residual urine. On close cystoscopic study I observed two small valvular folds running from the internal orifice of the bladder out to the region of the verumontanum. These were resected in their central portion by the baby punch and the child almost immediately began voiding a better stream and within a month had discarded his urinal and had perfect urinary function and control which has remained perfect for the three years I have followed him.

Case 2. A girl of 6 with 300 cc. residual, marked regurgitation and tortuosity of the ureters and dilatation of renal pelvis whom I have watched for a number of years and in whom the striking observation of the recaptation of the vesical valve was observed. This child at present shows no regurgitation up the ureters after marked distention of the bladder. She had suffered with chronic pyelonephritis since infancy and is now entirely well except for a slight bacteriuria.

Case 3. Girl of 5, 600 cc. residual, tremendous dilatation of ureters and renal pelvis, marked uremia. Had suffered with and been treated for chronic pyelonephritis since infancy. Has been entirely well for three years following the removal of but one section of tissue from the midportion of a vesical neck contracture.

Case 4. A boy of 4½ years who was observed during the last year. He had suffered with pyelitis since infancy and had been treated constantly by qualified pediatricians. He was desperately uremic carrying a nitrogen retention of 90. There was a dirty residual urine of 350 cc. He required preliminary catheter drainage for three months. With only local anesthesia, cystoscopic examination showed a contracture of the vesical neck. Cystogram revealed a tremendous bladder, both ureters regurgitant and over an inch in diameter. The renal pelvis were tremendous. The roentgen ray photo of the completely filled bladder, ureters and kidneys practically covered the entire abdomen. Within twenty-four hours after the removal of the obstruction by means of the punch the child voided 8½ ounces whereas he had previously never voided over 2 ounces at a time. Within a month the urine was perfectly clear and he was emptying his bladder completely. He has gained six pounds in weight and is entirely well.

Case 5. Girl, 26 months old, had been a subject of recurrent febrile attacks for many months; pus and bacilli had been found in the urine constantly but there were no bladder symptoms. She had been examined elsewhere and a double ureter and renal pelvis was found on the right side with infection in the upper pelvis. Heminephrectomy had been advised. My examination revealed an obstruction at the orifice of the bladder due to valves retaining three ounces of residual urine. The orifice of the ureter which drained the infected portion of the kidney was regurgitant. Following the removal of the valvular obstruction with the baby punch the residual urine disappeared and with it the infection in the kidney pelvis. This case shows the absolute necessity of observation of the nature of the ureteral orifice, determination of residual and of the cystogram.

After the relief of obstruction and free drainage afforded through normal bladder emptying, the ureters will usually empty themselves completely. In some instances repeated ureteral catheterizations are required in order to make topical applications to the pelvis and ureters and hasten resolution. I have never seen a case that did not empty sufficiently, in spite of the large tortuous ureters, to insure relief of absorption. Periureteritis with fixed angulations seldom occur in infants and children and with the proper relief of obstruction from below absorption of periureteral inflammatory reaction will usually subside after the infection recedes and I see no indication for the extensive ureteral plastic operations, such as freeing both ureters, straightening out angulations and resecting several inches of the duct with anastomosis of the two ends. This operation is extensive and serious and misses the point entirely. It is designed to treat the effect and not the cause and hence should have no place in this class of case.

This series of cases of bladder neck obstruction treated by transurethral removal is, as far as I can determine, the only one so far reported.

I urge the profession to suspect such mechanical causes for the majority of persistent or recurrent cases of pyelitis in infants and children and to seek early investigation for such cases so that prompt corrective measures may be applied.

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DISCUSSION

DR. C. K. SMITH, Kansas City, Mo.: There is very little one can add to this complete discussion except to emphasize some of the things so well brought out.

One of the principal ideas advanced was the reluctance which seems to prevail in presenting these children for urologic study. I think it can be well said that whenever a child reaches the place where he is diagnosed by the pediatrician, or anyone else, as chronic pyelitis, it is time for urologic study because it has been so well demonstrated that in nearly all of these cases there is a congenital defect of some sort. I think these congenital defects are much more common than is usually supposed. A few years ago at Mercy Hospital I did a series of forty autopsy studies on an unselected series of cases from a few days of age on up. We made cystograms and then opened the bladder introducing ureteral catheters making ureteropyelographic study. In something over 11 per cent of these cases we discovered congenital deformities of one sort or another and curiously enough in almost all these cases there was a clear urological history—the patient's urine was normal and there were no urological symptoms. That brings up an interesting point concerning the lesions we find in adults with hydronephrosis, etc. An individual has a sudden attack of pain, he has had a clear history previously but we find he has hydronephrosis. I do not think that this lesion occurs overnight, but that it has

been present since childhood and has finally made itself manifest.

I was interested particularly in Dr. Caulk's study in his ability to differentiate between bladder-neck obstruction and neurological lesions of the bladder. I think this requires a great deal of diagnostic acumen and cystoscopic experience. We had one case a few years ago in which a boy had chronic retention of urine with a dribbling overflow. It required a great deal of careful study and analysis to decide whether or not we were dealing with a neurological lesion. We finally decided on the neurological lesion in the affirmative and did a pre-sacral neurectomy with splendid results, putting the bladder in physiological balance.

I again wish to emphasize the fact that when a child has chronic pyuria he certainly is a candidate for urological survey.

XANTHOMATOSIS: SCHÜLLER-CHRISTIAN'S DISEASE

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Xanthomatosis is a disturbance of metabolism in which lipid masses, particularly cholesterol and its esters, are deposited leading to a characteristic hyperplastic reaction in the reticulo-endothelial system. Clinically this condition is characterized by a group of symptoms, the predominant ones being defects in the bones of the skull, exophthalmos and diabetes insipidus. The literature abounds with titles under which this condition has been described. One group of titles employs either singly or in various combinations the names of the earliest authors describing the disease; Hand's disease,¹⁰ Christian's syndrome,⁷⁹ Schüller's disease,⁴⁸ Schüller-Christian's disease and Hand-Schüller-Christian's disease. A second group of titles has attempted to designate etiology, pathology or both. This group includes lipid granulomatosis,^{10, 61} lipid histiocytosis (Bloom, Wohlbach), xanthomatosis,⁶⁴ lipoidosis, cholesterol type of Schüller-Christian,²¹ generalized xanthomatosis of the Schüller-Christian type,¹² reticulo-endotheliosis,⁵⁶ lipoidosis cholesterinica granulomatosa type Schüller-Christian.⁵⁷ Other titles applied by some authors are "landkartenschädel,"⁶⁸ la dysostose hypophysaire,⁵⁵ dysostose craniolypophysaire (Bosquet) and xanthomatoze craniolypophysaire.^{44, 8}

It is thus seen that great diversity exists, but in surveying the literature the title "Schüller-Christian's Disease" is found, used either alone or parenthetically, in over half of the reported cases. Thus even though xanthomatosis or lipoidosis might be more descriptive, the sanction

of usage tends to confirm the title "Schüller-Christian's disease."

Schüller-Christian's disease clinically presents three main symptoms, viz., defects in the bones of the skull, exophthalmos, either unilateral or bilateral, and diabetes insipidus. Besides these principal symptoms there are others which are less constant. The lesser symptoms include endocrine disturbances, either as a retardation of growth or as an adiposogenital dystrophy; bone defects in the extremities and pelvis sometimes leading to pathological fracture, loosening and falling of the teeth, enlargement of the spleen and liver, fibrosis of the lungs, otitis media, xanthomatous lesions of the skin and also involvement of the nervous system. An elevated blood cholesterol is found in many cases.

Sosman⁷² in 1932 pointed out that it was not necessary that the triad of skull defects, exophthalmos and diabetes insipidus be present to make a diagnosis, and Henschen³⁴ emphasized this to the point of classifying all cases in eight groups in varying combinations of one, two or three symptoms. This has led to the belief that an early manifestation of the disease may present but one of the major symptoms, and that as the disease progresses the others appear to complete the triad. A number of authors, especially among the Europeans, have reported what they designate "monosymptomatic xanthomatosis" and have urged the recognition of the disease in that stage so that treatment may be instituted.

It has been considered rather rare but is being reported in the literature with increasing frequency. In 1928 Rowland⁶⁴ summarized the literature and found 14 cases; in 1929 Moreau⁵⁵ listed 36 cases; Henschen³⁴ in 1930 listed 57 cases; Chiari¹² in 1931 reported 22 cases; Sosman⁷² in 1932 listed 45 cases; Rowland⁶⁵ in 1932 stated there were 54 cases and Natali⁵⁷ in 1934 reported 66 cases. There are undoubtedly quite a number of cases belonging to this grouping which have been reported under titles different from the ones generally accepted and therefore difficult to find. However, comparison of the reported tabulations of the different authors and investigation of the literature reveal 123 cases which appear to belong under this diagnosis. The case here reported makes 124.

REPORT OF CASE

L. W. B., aged 37, white, male, machinist, was admitted to the hospital November 17, 1934, complaining of constant headache. He had been married but was divorced and was the father of no children. His father was of Missouri stock, was in good health and 80 years of age. His mother, born in Ireland, aged 67, was in fairly good health. Five brothers and one sister were

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alive and all in good health. One sister had died of heart trouble.

During childhood he had had the commoner contagious diseases but no diphtheria, scarlet fever or small-pox. He had no other ailments until he was 21 years of age while he was in the service of the United States. At that time he became very "nervous" and had to urinate very frequently and in large amounts. This led to his discharge from the Army. In the years following he stated that this "nervous bladder condition" would be better at times, then again grow worse.

At the time of admission he complained of rather persistent though not intense headache. This headache was accompanied by a soreness of the top of the head and a buzzing sound, all the symptoms being worse at night and frequently absent during the day. These symptoms had been present for a period of between two and three months, starting when he was struck on the head by a piece of scaffolding while working as a carpenter.

Further inventory revealed no respiratory or gastrointestinal complaint. He did state that he was troubled with frequency, usually having to urinate eight or ten times during the morning and somewhat less later. He was not excessively thirsty but did drink much water. He stated that he had at previous times both drunk more water and passed more urine.

The only other complaint elicited was some backache which was recent and not especially severe.

Physical examination revealed an adult white male, 37 years of age, weighing 141½ pounds and 72¼ inches tall. He did not appear ill. Examination was negative except for the following findings:

Bony depressions were felt in the skull, principally near the vertex and along the sagittal suture a little to the right of the midline. Three of these were definitely palpable as smooth-margined defects. Some tenderness was present.

The right eye was slightly more prominent than the left.

There was a mild spasm of the lumbar muscles and forward bending was limited about one third.

The blood pressure was 94 systolic and 60 diastolic. The pulse was regular, 72 per minute, and the radial vessels were not palpable.

Examination of the urine showed an increased volume, 24 hour specimens ranging from 2160 cc. to 2940 cc. The specific gravity was not lowered, averaging between 1.012 and 1.013. Chemical and microscopic examinations of the urine were negative. No Bence-Jones protein found.

The blood Wassermann was negative. The blood nonprotein nitrogen was 32.1 mgms., the urea nitrogen 17.3, the creatinin 1.4, the blood sugar 102, the calcium 10 and the blood cholesterol 235.3 mgms. per 100 cc.

The total red count was 4,820,000, with a hemoglobin of 88 per cent. The total white count was 11,500; 65 per cent polymorphonuclears, 33 per cent small mononuclears and 2 per cent large mononuclears, with no abnormalities in the staining or morphology of the cells.

In the examination of the spinal fluid 8 cells per cubic mm. were found. The Wassermann was negative, no globulin present, the gum mastic was negative and the dextrose was 0.07 per cent.

In the roentgen ray film a very characteristic picture was found. In the midline and slightly to the right there was seen a total defect of both tables of the skull. This was near the bregma and measured 2 by 3.5 cm. Two other defects were present, one to each side of the midline and towards the lambda, measuring, respec-

tively, 2 and 3 cms. in diameter. A fourth defect, about 1 cm. in diameter, was seen on the right side in the parietal bone. The outlines of these bony defects were slightly scalloped and no evidence of bone proliferation was noted. The sella turcica was extremely shallow and the anterior clinoid processes could not be made out. The posterior clinoid processes were short and stubby. A linear skull fracture beginning about 1½ inches above the nasion and terminating in the first bony defect was also noted. Films of the vertebrae, ribs, pelvis and femurs showed no changes.

In the differential diagnosis systemic disease with osteoclastic processes had to be excluded. Both tuberculosis and syphilis were excluded because of the absence of any physical findings pointing to those conditions, laboratory findings and the absence of bony proliferative changes.

Osteoclastic metastatic carcinoma was excluded because of the clear cut appearance of the bone defect as contrasted to the fuzzy, irregular borders seen in carcinoma, as well as by history and physical examination.

Multiple myeloma was eliminated because of absence of bony changes elsewhere, absence of pain, weakness, Bence-Jones protein, progressive anemia and chronic nephritis with retention but with increased blood pressure.

Osteoporosis circumscripta was ruled out because of the multiplicity of lesions and lack of bone changes suggesting Paget's disease.

Hyperparathyroidism was ruled out because of lack of systemic involvement and the absence of the uniform miliary and granular mottling, with thinning of the cortex and delicate and indistinct trabecular pattern seen in the skull. There were likewise no renal calculi present.

The diagnosis made was that of Schüller-Christian's disease. It was based on the presence of the typical triad, viz., bony defects in the skull, diabetes insipidus and exophthalmos. The diabetes insipidus at the time was mild but according to the history had been more severe. There was not a marked exophthalmos present but the right eye was prominent. The presence of a blood cholesterol of 235.3 mgms. per 100 cc. was a confirmatory finding.

The patient was referred to the radiologist for roentgenotherapy and the progress of the case is being watched with great interest.

Though the first case was reported by Hand³² in 1893 he did not recognize it as such and



Fig. 1. Lateral view of the skull showing defects in the bone.

ascribed to it a tuberculous nature. In 1915 Schüller⁶³ described two cases and in his discussion stated the cause to be a pituitary disturbance. In 1919 Christian¹³ reported his case, postulating a disturbance in function of the pituitary gland. Other cases were also reported and various etiological factors ascribed. In 1928 Rowland,⁶⁴ however, published his paper and in it he definitely placed Schüller-Christian's disease in the group of lipid diseases, along with Gaucher's disease, Niemann-Pick's disease, xanthomas occurring in diabetes and pregnancy and the so-called essential xanthomatosis.

Each of these conditions was similar in that there was a disturbance of lipid metabolism in which tumor-like masses were deposited in various tissues and organs. The site of the lipid deposit and the type of lipid concerned in the disturbance determined the disease. Epstein and Lorenz²¹ by their chemical studies very carefully worked out the character of lipid concerned in each disease. Thus, in Gaucher's disease they found cerebrosides, (chiefly kersin); in Niemann-Pick's disease phosphatides (especially lecithin) and in Schüller-Christian's disease they found cholesterol and its esters. More recent evidence indicates the possibility of a disturbance in the ratio between cholesterol and the esters as well as a total cholesterol increase. In essential xanthomatosis and xanthomas there is a complex group of lipoids with cholesterol and cholesterol esters present.

In Gaucher's disease the spleen is usually involved and the disease, found in small children, is comparatively benign. In Niemann-Pick's disease, also present in small children, usually of Jewish extraction, the spleen and liver are involved and the disease is usually fatal. In Schüller-Christian's disease the involvement is most common in young children though a considerable number of cases are being reported in adults. The disease is fatal in about one fourth of the cases and the usual sites of involvement are the skull, orbit and pelvis, though skeletal, visceral, dermatologic and neurologic involvement are also reported.

There is no definite racial tendency to the disease. The disease has been reported in America, England, France, Switzerland, Germany, Austria, Czecho-Slovakia, Russia, Sweden, Italy and South America. There has been one case^{76, 54} reported of a Maori child. There have been two cases reported in Negroes;^{50, 77} three cases^{36, 16, 12} reported in Jews. In Kyrklund's case³⁴ the girl was a Finlander. Both of Henschen's cases³⁴ were in Swedish children, Lesné's two cases^{44, 45} were of French children; Morison⁵⁶ reported two English children;

Christian's patient¹³ was of Austrian parentage; Hausmann and Bromberg's patient was of Sicilian origin; Sosman's patients⁷² were of English-American parentage (case 3), Irish parentage (case 4) and French-Canadian parentage (case 5). Other authors do not definitely state the nationality but enough cases are cited to show almost a universal geographic involvement.

Heredity and family appear to play no part although Herzenberg³⁶ stated that a sister of her patient had symptoms suggesting Schüller-Christian's disease and Merrill⁵¹ reported cutaneous xanthoma in a member of his patient's family.

There is a definite predilection for the male sex, the ratio being practically 2 to 1. In the group of 124 cases collected, 78 were males, 41 females and the sex in 5 cases was not reported.

Even though lately there have been many cases reported in adults it will be seen that it is remarkably more frequent in children. Almost half of the cases (59 of the 124) are reported in children under six years of age and two thirds of all the cases are in children of 12 or under. The maximum number of cases are discovered in the second, third and fourth years. Beyond the first decade of life the age distribution is fairly general except in the third decade where fifteen cases are grouped. The ages range from 1 to 69 years (case 2 of Chester). The conception of three types or forms of Schüller-Christian's disease as pointed out by Henschen³⁴ and Natali,⁵⁷ namely, the infantile, juvenile and adult forms is readily noted in studying the age distribution. (Fig. 2.)

Due to the fact that in many of the cases only initial reports have been made it is difficult to state an accurate percentage of deaths. In thirty instances there is a definite notation of the death of the patient and in most of these cases postmortem findings. Assuming that all the others were alive, this would give a minimum mortality of 24 per cent. Eleven of the cases reported dead were beyond the first decade.

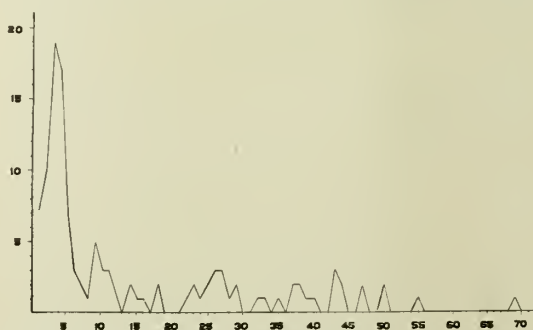


Fig. 2. Age incidence of Schüller-Christian's disease. In the total of 124 cases the age of three patients was not given; in two others it was stated "grown."

The question of prognosis is further made indefinite because spontaneous retrogression has been noted in some cases. In many of the cases there are periods of activity alternating with periods of quiescence. This probably explains the presence of the disease in adults.

There has been a great deal of speculation concerning factors predisposing to Schüller-Christian's disease. In Hand's original case the factor of infection was suggested and in many cases reported later the presence of an infection has been noted either just before the discovery of the major symptoms or concurrently. An otitis media has been described most commonly.^{39, 64, 72, 3, 11, 43, 47, 54} In a few of these cases destruction of the temporal bone as part of the skeletal changes has also been described but in others this is not mentioned. Mastoid disease has been mentioned by Grosh and Stifel,³⁰ Sosman (case 1) and Merrill. Henschel (case 1) described an erysipeloid condition of the external genitalia. Scarlet fever,³⁹ mumps¹³ and tonsillitis¹⁸ have also been noted. While it is possible, the comparatively infrequent occurrence of infection would tend to invalidate it as a definite predisposing factor.

Trauma particularly of the skull has also been noted in a number of cases. In some instances the trauma was followed by hematoma-like swellings and later bony defects were palpable and demonstrated radiographically at these sites. In the case here reported there is a history of trauma to the skull and the radiograph shows a fracture line, yet close questioning brought out the fact that "soft spots" had been present for years prior to the blow on the head. Trauma has been recorded in twelve reports.^{64, 22, 58, 72, 29, 6, 26, 73, 53, 70, 47, 42} Because of the small number of cases reporting trauma it appears that no definite relationship can be positively ascribed.

Natali,⁵⁷ believing that trauma and infection cannot account for the multiple and in some cases very general involvement, and basing his theory on the work of Thannhauser, believes that as a secondary factor there is a systemic lowering of mesenchymal cell activity, or "de-constitution," with the appearance of xanthomatous masses in many places.

Disease of the pituitary gland was earlier considered as a basic factor^{68, 13, 1} but this view today has very few adherents.

A neoplastic origin was suggested^{19, 77} but this likewise never gained great favor.

In 1928 Rowland⁶⁴ clarified the situation when he stated that the primary factor was a metabolic disturbance with an increase of lipoids, principally cholesterol and its esters, in the blood stream; then a deposition of these lipoids (as a phagocytosis) in zones where either

trauma or infection had stimulated a histiocytic response. Hyperplasia of the reticulo-endothelial elements increased the size of these small areas of lipoid deposit until the characteristic yellow tumor mass was grossly evident. This stage was followed by an increase of fibrous tissue elements, sometimes amounting to a pure fibrosis and a foreign body giant cell reaction.

Since the above was stated there has been no definite evidence brought forth to change the concept of xanthomatosis. There has been some dispute as to whether the cholesterolemia or the proliferation of the reticulo-endothelial elements was primary, but further evidence will have to be adduced to clear that point absolutely.

It is interesting, in view of Rowland's postulate of a hypercholesteremia, to note the values reported. In 38 cases, the figures for blood cholesterol are given and in one⁷⁰ it is reported increased. If we assume the upper normal blood cholesterol limit as 230 mgs. we find that 20 of the 39 are above that figure.

Table 1. *Range of Blood Cholesterol Reported in 39 Cases of Schüller-Christian's Disease*

| | Mgs. per 100 cc. |
|---------------------------------|------------------|
| Spillman and Watrin | 525 |
| Griffith | 397 |
| Rowland (2) | 325 |
| Herman | 320 |
| Rowland (1) | 225-315 |
| Gaines | 313 |
| Bendixen | 130-310 |
| Lesné, Clement, Guillain | 296 |
| Lesné, Lievre, Boquien | 296 |
| Hagenau and Lantier | 295 |
| Anders | 294 |
| Natali | 294 |
| Greifenstein | 267 |
| Turner, Davison, White | 229-267 |
| Krauss and Barth | 259 |
| Chiari | 185-256 |
| Pincherle | 254 |
| Steinsleger and Shilletel | 253 |
| Hoefel | 238 |
| Dauksys | 235 |
| Seeliger | increased |
| Sosman (1) | 84-213 |
| Frimann-Dahl | 207 |
| Sosman (3) | 193-200 |
| Chiari-Schüller | 192 |
| Sosman (5) | 191 |
| Sunderman | 187 |
| Lichty | 182 |
| Dalitsch | 180 |
| Merritt-Paige | 179 |
| Hochstetter and Veit | 174 |
| Sosman (4) | 170 |
| Auslander | 164 |
| Sparrow and Fetner | 162 |
| Chester-Kugel | 152 |
| Davison | 152 |
| Mettel | 147 |
| Reich | 140 |
| Gitting | 120 |

In Sosman's case (1) the range from a very low to an upper range blood cholesterol is particularly to be noted since it appears that the increase in cholesterol occurred with other active manifestation of disease; and as healing progressed the cholesterol was lowered. In Bendixen's case⁴ a rather peculiar condition was manifested in that prior to roentgentherapy the blood cholesterol was within normal limits

but the lecithin was greatly raised (800 mgs.). After treatment the lecithin was reduced to the upper normal limits but the cholesterol was raised to 310.

There have been chemical analyses made (Chiari, 1930-33, Natali) upon postmortem tissues and these show definite increase in the ratio of cholesterol and its esters, the normal ratio of 1:2 being raised in one case to 1:9.9 (liver analysis, Chiari 1933).

Before discussing the symptoms, a short résumé of the essential pathology might be in order. For detailed pathologic studies reference may be made to Chiari.¹² Grossly, the xanthomatous tumor masses are seen as nodules or plaques of a yellow or yellow brown granulation tissue. In the skull the dura is thickened and these masses tend to erode the skull with the formation of the characteristic defects. The sella may be involved. The dura in the region of the pituitary gland, the infundibulum and the tuber cinereum are frequently involved with resultant diabetes insipidus and developmental changes. Retrobulbar deposits tend to the appearance of the exophthalmos. There also is noted involvement of various portions of the skeleton with erosions, cyst-like formations and at times pathologic fractures. Involvement of the liver and spleen leads to a general enlargement and in a few cases there has been an icterus. In a few instances involvement of the cerebral cortex has been noted.

Microscopically the early characteristic lesion consists of large round or globular cells 25 to 30 μ in diameter, with abundant cytoplasm and a small, pyknotic nucleus. These cells are filled with lipoid granules which stain orange with sudan III and are double refractile when viewed with the polariscope. In ordinary staining the fats are dissolved out and the cells have a vacuolated appearance. This has led to their designation as foam cells (Schaumzellen). As the lesions grow older there is noted near the periphery a deposition of fibrous tissue elements and a gradual fibrosis with the appearance of multinuclear giant cells. As the fibrous tissue replaces the xanthoma or foam cells the lipoid tends to disappear. In very old lesions hyalinization may take place.

Inasmuch as xanthomatosis is manifested by involvement of the reticulo-endothelial system in different locations and in differing degree, the pathologic picture and the symptoms also differ in the cases reported, depending primarily on the degree as well as the localization of the involvement. Analysis tends readily to a grouping of the cases according to the principal changes taking place. Henschen³⁴ has divided the cases into five groups, thus:

1. Those cases with skeletal changes; this

group includes those where periosteal and dural changes cause the following group of symptoms and signs, viz.: Skull defects, exophthalmos, falling teeth as well as ear and nose symptoms.

2. Those with endocrine disturbances.
3. Those with skin changes.
4. Those with visceral involvement.
5. Those involving the nervous system.

While such a grouping tends to easier classification it is the symptom-complex which draws attention to the presence of the disease, so it may be well to note the occurrence of the symptoms in the cases reported.

The principal symptom described has been the loss of bony tissue of the skull. This finding was present in 91 cases (72 per cent). In some cases these defects have been single; but usually more than one has been found and they have a tendency to coalesce, forming large irregular defects. The appearance of such a skull on the roentgen ray film has led to the designation of "geographic skull" (Landkartenschädel). While the vault is most frequently involved the orbital plate and the temporal bone are also involved in numerous instances.

The second most frequent finding was that of diabetes insipidus. When present this was consistently found, showing less tendency to retrogression and usually being the symptom causing the most concern. This was present in 73 cases (58 per cent).

Involvement of other portions of the skeleton (excluding the skull) was found in 60 cases (48 per cent). The pelvic girdle and the femurs were the more usual sites, but the ribs, scapulae and vertebrae also showed involvement at times.

In 55 cases there was noted the presence of either a unilateral or bilateral exophthalmos. This ranged from a slight protrusion to almost a complete subluxation in some cases. Forty-four per cent of the cases showed exophthalmos. Most of the cases exhibited a unilateral exophthalmos only about one fourth reporting both orbits involved.

Lesions of the skin were reported present in 44 cases (35 per cent). One of the commonest sites for lesions of the skin was the upper eyelid.

A gingivitis, usually with loosening of the teeth and their spontaneous loss, has been noted in 23 instances (18 per cent). In some of these cases the xanthomatous masses were seen in the socket pushing the tooth out. Dalitsch¹⁶ particularly emphasized the value of thorough investigation when a refractile mouth condition of this type was encountered.

Endocrine disturbance manifestations, chiefly as a retardation of both physical and mental development (17 cases) as well as a typical

adiposogenital dystrophy (8 cases) have been reported in a total of 25 instances (20 per cent).

Involvement of the viscera was usually (except in the case of lungs) discovered at the autopsy table. The liver and spleen have been reported involved in 14 cases while lung involvement was noted in 10 instances.

There have also been reported xanthomatous infiltration of the heart, larynx, endocardium, pituitary gland proper and cerebral cortex.

The disease has been of peculiar interest to roentgenologists inasmuch as the outstanding symptoms concerned defects of bony tissue and were discoverable during roentgenologic examination. The defects in the skull almost universally appear as smooth bordered, clear cut areas involving both the internal and external tables. Slight scalloping is noted at times. There is practically no evidence of bone proliferation; only in two cases^{4, 59} is there definite mention made of this. The defects are usually in the vault, involving the frontal, parietal and temporal bones. The base of the skull is much less frequently involved. In view of the frequency of developmental changes the region of the sella turcica holds special interest. However, in the greatest number of reported cases the sella turcica is reported as normal or unchanged. In a few instances various changes have been reported; "irregular and eroded";⁸¹ "small and deformed";⁵⁵ "erosion of the floor";⁵² "slightly increased";²² "widened";⁵⁰ "increased";⁸⁰ and "small."⁶⁸ In our case the sella turcica was very shallow and the anterior clinoid processes were not seen.

In other portions of the skeleton a similar type of bony defect is found. Common sites are the iliac wings, the greater trochanter, the neck and the upper half of the femur. The ribs and scapula are involved less often and the humerus, radius and tibia but rarely. In no instance have the bones of the hand or foot been reported.

In the cases showing lung involvement, roentgen ray films presented a rather general fibrosis with small round shadows scattered uniformly throughout both lung fields but more numerous in the bases, the general appearance greatly suggesting a miliary tuberculosis.

There are no characteristic changes noted in any of the laboratory examinations except in the blood lipoids.

The treatment attempted has been of three different types, dietary, glandular and roentgentherapy. It appears quite logical since, essentially, a hyperlipemia is present that a dietetic régime should yield the best results. There have been cases reported where on low fat diets improvement has been noted but there have been too few cases tried to render a fair verdict.

Glandular therapy has been resorted to with a two-fold object. The first was the treatment of the diabetes insipidus and in these cases pituitary solution has been used with uniformly beneficial results in controlling the polyuria and the polydipsia. However, on the cessation of administration the diabetes recurs to the previous grade with absolutely no definite permanent improvement. Various combinations of glandular products have been tried to overcome the developmental defects but little success has attended their use. Insulin has been used in undernourished patients chiefly to increase appetite and thus build up their vigor and weight. It has no specific remedial action.

The treatment that lately has enjoyed the greatest vogue has been roentgentherapy, and it has been almost universally beneficial. Twenty-two cases^{25, 14, 81, 69, 62, 72} (5 cases),^{38, 73, 63, 67, 43, 27, 28, 56} (2 cases),^{74, 35, 59} are reported in which roentgen treatment was tried and uniformly good results obtained in healing of the bone defects. Harrison³³ in reporting roentgen treatment of the case of Kartagener and Fischer stated that the results obtained over the bones were not overly satisfactory and radiation of the lungs made the fibrosis worse. A case of Morison's (case 1) had both radium and roentgentherapy with beneficial results. Two cases^{53, 37} had radium therapy alone with good results. In irradiation over the pituitary region, a few cases^{14, 81} showed beneficial results in reducing polyuria as well as aiding in a return of normal physical and sexual development. It would seem that roentgentherapy offers the best means of treating local lesions either of the bones or of the skin. However, it must be kept in mind that defects of bones in other locations may develop concurrently as some are being healed.

SUMMARY

1. Xanthomatosis (Schüller-Christian's disease) is a disturbance of lipid metabolism with an irregularly periodic increase in blood cholesterol, followed by the deposition of cholesterol and its esters in the reticulo-endothelial system, usually at places where either infection or trauma has produced a histiocytic response with subsequent hyperplasia of the reticulo-endothelial elements, nodule formation, fibrosis, foreign body giant cell formation and sometimes hyalinization.

2. Clinically, it manifests itself by the presence of a combination of all three or any one or two of the major symptoms, viz., bony defects of the skull, diabetes insipidus and exophthalmos. There are frequently other symptoms present depending upon the localization of the xanthomatous deposits.

3. It is a disease to which the male sex is more susceptible in the ratio of 2:1. It is usually found in the first decade of life, though the occurrence may be grouped in three age periods, infantile, juvenile and adult. Race, geography and heredity play no part in its incidence. Mortality estimates range from 25 to 33 per cent.

4. A successful scheme of treatment has not yet been evolved although roentgentherapy has shown remarkable results, especially in the treatment of local lesions. The evaluation of the results of treatment has been rendered difficult because of spontaneous regression in some cases. In spite of the occurrence of remissions, the actual improvement noted in cases where roentgentherapy was used speaks strongly for its use.

5. A review of the literature brings to light 123 cases which appear to conform to this group; the one here reported makes 124.

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BIBLIOGRAPHY

Those cases which have not been included in the summaries of Moreau, Henschen, Sosman and Natali are marked with an asterisk.

1. Alberti, O.: Singolari alterazione scheletriche in un caso di infantilismo e ipofisario, Radiol. Med. **11**:517, 1924.
2. *Attig, R.: Ein Fall von generalisierter Xanthomatose, vom typus Schüller-Christian, Jahrb. d. Kinderh. **134**:196 (January) 1932.
3. *Auslander, Milton: Schüller-Christian's Syndrome, Penn. M. J. **25**:708 (July) 1932.
4. *Bendixen, P. A.: Xanthomatosis or Schüller's Disease With Cranial Defects, West. J. Surg. **41**:147 (March) 1933.
5. Bernuth, F. von: Ueber einen Fall von Allgemeiner granulomatöser Xanthomatose. (Schüller-Christiansche Krankheit), Arch. f. Kinderh. **100**:115, 1933.
6. Brehme, J.: Ueber hypophysäre landkartenschädel, Ztschr. f. Kinderh. **46**:401, 1928.
7. *Borisov, S. P.: Three Cases of Christian-Schüller's Disease, J. rann. det. vozr. **13**:154, 1933.
8. Caccuri, S.: La xantomatosi cranio-ipofisaria, Morgagni **75**:656 (May 21) 1933.
9. Ceelen, W.: Ueber die Lipoidgranulomatose (Hand-Schüller-Christiansche Krankheit), Deutsche Med. Wchnschr. **59**:680 (May 5) 1933.
10. Chester, Wm.: Ueber Lipoidgranulomatose, Virchow's Arch. f. path. Anat. **279**:561, 1930.
11. *Chester, W., and Kugel, V. H.: Lipoidgranulomatosis (Type Hand-Schüller-Christian) Report of a Case, Arch. Path. **14**:595 (November) 1932.
12. Chiari, H.: Die generalisierte Xanthomatose vom typus Schüller-Christian, Ergebn. d. Path. u. Anat. **24**:396, 1931.
13. Christian, H. A.: Defects in Membranous Bones, Exophthalmos and Diabetes Insipidus; Contributions to Medical and Biological Research, New York City, Paul Hoeber **1**:1930, 1919.
14. Cignolini, P.: Effetti locali e generali della radioterapia in un caso di diabete insipido associato ad osteopatia, Radiol. Med. **16**:16 (January) 1929.
15. Comby, J.: La maladie de Schüller-Christian, Arch. de med. d. Enf. **36**:556 (September) 1933.
16. *Dalitsch, W. W.: Xanthomatosis, Schüller-Christian's Disease, Illinois M. J. **63**:131 (February) 1933.
17. Davison, C.: Xanthomatosis and the Central Nervous System (Schüller-Christian Syndrome), Arch. Neurol. & Psychiat. **30**:75 (July) 1933.
18. Denzer, B. S.: Defects in the Membranous Bones, Diabetes Insipidus, and Exophthalmos, Am. J. Dis. Child. **31**:480 (April) 1926.
19. Dietrich: Ueber ein Fibroxanthosarkom mit eigenartiger Ausbreitung und über eine Vena cava superior sinistra bei dem gleichen Fall, Virchow's Arch. f. path. Anat. **212**:119, 1913.
20. *Doleschall F. von, and Udvardy L. von.; Schüllerscher Symptomenkomplex, Deutsche Med. Wchnschr. **60**:281 (Feb. 23) 1934.
21. Epstein, Emil, and Lorenz, Karl: Die Phosphatidzellverfärbung der Milz bei Niemann-Pickscher Krankheit verglichen mit der Lipoidchemie des Morbus Gaucher und der Schüller-Christianschen Krankheit, Ztschr. f. physiol. Chem. **192**:145, 1930.
22. Frimann-Dahl, J., and Forsberg, R.: Roentgen Treatment of Xanthomatosis, Acta Radiol. **14**:506, 1933.
23. *Gaines, M. T.: Xanthomatosis With Report of a Case, South. M. J. **26**:489 (June) 1933.
24. *Gigon A.: Zur kenntnis der Schüller-Christianschen Krankheit, Schweiz. Med. Wchnschr. **62**:4 (Jan. 2) 1932.
25. Gilmore, M. E.: Multiple Myeloma Syndrome in a Child, Texas State J. Med. **21**:358 (October) 1925.
26. Globig, Hans: Ueber eine eigenartige Knochenerkrankung mit multipler tumorbildung im Skelletsystem bei eine Kinde, Jahrb. f. Kinderh. **125**:90 (September) 1929.
27. *Greifenstein, A.: Roentgenologische Veränderungen am Schläfenbein bei zwei Fällen von Schüller-Christianscher Krankheit, Ztschr. f. Laryng. Rhin. Otol. **24**:384, 1933.
28. *Greifenstein, A.: Die Mitbeteiligung der Gehörorgans der Nebenhöhlen und der Kiefer bei der Schüller-Christianschen Krankheit, nebst einer neuen eigenen Beobachtung, Arch. f. Ohren, Nasen u. Kehlhopf. **132**:337, 1932.
29. Griffith, J. P. C.: Xanthoma Tuberosum, With Early Jaundice and Diabetes Insipidus, Arch. Pediat. **39**:297 (May) 1922.
30. Grosh, L. C., and Stifel, J. L.: Defects in Membranous Bones, Diabetes Insipidus and Exophthalmos, Arch. Int. Med. **31**:76 (January) 1923.
31. *Haguenauf, J., and Lantier, P.: Un cas de lacune du crane. Forme monosymptomatique de maladie de Schüller-Christian, Bull. et mem. Soc. med. d. hop. de Paris **49**:161 (Feb. 13) 1933.
32. Hand, A.: Polyuria and Tuberculosis, Arch. Pediat. **10**:673, 1893.
33. Harrison, R. S.: Zur Roentgenbehandlung der Schüller-Christianschen Krankheit, Roentgenpraxis **6**:305 (May) 1934.
34. Henschen, F.: Ueber Christian's Syndrome und dessen Beziehungen zur Allgemeinen Xanthomatose, Acta Pediatr. (Supp. 6) **12**:1, 1931.
35. *Herman, K.: Die generalisierte Xanthomatose, Munch. Med. Wchnschr. **81**:1100 (July 20) 1934.
36. Herzenberg, H.: Die Skeletform der Niemann-Pickschen Krankheit, Virchow's Arch. f. path. Anat. **269**:149, 1928.
37. *Jönson, G.: Cited by Morison.
38. Kartagener, M., and Fischer, H.: Untersuchungen ueber den lipid und Calciumstoffwechsel in einem Fall von Schüller-Christianschen Krankheit, Ztschr. f. Klin. Med. **119**:421, 1932.
39. Kay, T. W.: Acquired Hydrocephalus With Atrophic Bone Changes, Exophthalmos and Polyuria, Penn. M. J. **9**:520, 1905-06.
40. *Kienböck, R., and Meworach, L.: Ein Fall von multiplen Xanthomen in den Knochen, Roentgenpraxis, **4**:76 (Jan. 15) 1932.
41. *Kienböck, R., and Schnek, F.: Ein Fall von Xanthomatose des Skellet, Beitr. z. Klin. Chir. **156**:237, 1932.
42. *Krauss, and Barth: Beitrag zur klinik der Hand-Schüller-Christianschen Krankheit, Klin. Wchnschr. **13**:876 (June 16) 1934.
43. *Lehndorff, H.: Zur Fruhdiagnose der monosymptomatischen Form der Skelletxanthomatose (Schüller-Christiansches Syndrom), Wien. Med. Wchnschr. **82**:1513 (Dec. 3) 1932.
44. *Lesné, E., Clement, R., and Guillain, P.: Xanthamatose cranio-hypophysaire. (Maladie de Schüller-Christian), Bull. et mem. Soc. med. d. hop. de Paris **48**:1555 (Dec. 12) 1932.
45. *Lesné, E.; Lievre, J. A., and Boquien, Y.: LaXanthomatose Craniohypophysaire (Maladie de Schüller-Christian), Presse Med. **41**:138 (Jan. 25) 1933.
46. *Letterer, E.: Ein weiterer Fall von Schüller-Christianscher Erkrankung (Lipoidgranulomatose), Munch. Med. Wchnschr. **80**:201 (Feb. 3) 1933.
47. *Lichty, D. E.: Lipoids and Lipoid Disease; Xanthomatosis (Schüller-Christian Type), Arch. Int. Med. **53**:379 (March) 1934.
48. Lyon, E., and Marum, H.: Die Schüllersche Krankheit (Christian's syndrome), Fortschr. a. d. geb. d. Roentgenstrahlen **40**:463, 1920.
49. Marcelli, G.: La sindrome di Hand-Schüller-Christian, Pediatria **41**:808 (June) 1933.
50. McWhorter, and Weeks: Cited by Henschen.
51. Merrill: Cited by Henschen.
52. *Merritt, K. K., and Paige, B. H.: Xanthomatosis (Schüller-Christian Syndrome); Report of a Case With Necropsy, Am. J. Dis. Child. **46**:1368 (December) 1933.
53. *Mettel, H. B.: Xanthomatosis, Am. J. Dis. Child. **42**:858 (October) 1931.
54. Milne, D. S.: Cited by Henschen.
55. Moreau J.: La Dysostose Hypophysaire (Maladie de Schüller-Syndrome de Christian); Xanthomatose Cranio-Hypophysaire; Reticulo-endotheliose Cranio-Hypophysaire; Observations in extenso de tous les cas connus de Dysostose Hypophysaire, Arch. Franco-Belges de Chir. **32**:865 (October) 1930; **32**:961 (November) 1930.
56. *Morison, J. M. W.: Schüller's Disease (Reticulo-endotheliosis), Brit. J. Radiol. **7**:213 (April) 1934.
57. Natali, C.: Die Lipoidosis Cholesterinica Granulomatosa (Typus Schüller-Christian) und de Einteilung der lipoidosen, Frankfurt. Ztschr. f. Path. **47**:1-51, 1934.

58. Pickhan, A., and Joel, W.: Zur frange des sogenannten Landkartenschädels, *Roentgenpraxis* 1:791 (November) 1929.
59. Pincherle, M.: Cited by Comby.
60. *Reich, S.: Xanthomatosis and Schüller-Christian Syndrome; *Roentgenological and Clinical Study*, *Canad. M. A. J.* 31:256 (September) 1934.
61. *Rietschel, H.: Cited by Morison.
62. Rothnem, T. B.: Defects in Membranous Bones, Exophthalmos and Diabetes Insipidus (Christian's Syndrome), *Radiology* 15:694 (December) 1930.
63. *Rovida, F.: Della malattia di Schüller-Christian. Contributo personale, *Radiol. Med.* 19:667 (July) 1932.
64. Rowland, R. S.: Xanthomatosis and the Reticulo-Endothelial System, *Arch. Int. Med.* 42:611 (November) 1928.
65. Rowland, R. S.: Pediatric Investigation of Essential Xanthomatosis-Schüller-Christian Type, *Tr. Am. Pediat. Soc.* 44:73-75, 1932.
66. Santoro: Cited by Moreau.
67. *Savage, J. C.: Xanthomatosis (Lipoid Histiocytosis); Report of a Case, *J. Pediat.* 1:491 (October) 1932.
68. Schüller, A.: Ueber eigenartige Schädeldefekte im Jugendalter, *Fortschr. a. d. Geb. d. Röntgenstrahlen.* 23:12, 1915-1916.
69. Schüller, A., and Chiari, H.: Ein Fall von Xanthomatose, *Wien. Klin. Wchnschr.* 43:153 (Jan. 30) 1930.
70. *Seeliger: Landkartenschädel und Kopftrauma, *Arch. f. orthop. u. Unfall. Chir.* 32:584, 1933.
71. Sosman, Merrill C.: Xanthomatosis (Schüller's Disease; Christian's Syndrome); Report of Three Cases Treated With Roentgen Rays, *Am. J. Roentgenol.* 23:581 (June) 1930.
72. Sosman, Merrill C.: Xanthomatosis (Schüller-Christian's Disease; Lipoid Histiocytosis), *J. A. M. A.* 98:110 (Jan. 9) 1932.
73. *Sparrow, T. D., and Fetner, L. M.: Xanthomatosis, *J. A. M. A.* 99:2176 (Dec. 24) 1932.
74. *Steinsleger, M. and Shillitel, L.: Enfermedad de Schüller-Christian, *Semana Med.* 2:505 (Aug. 24) 1933.
75. *Stoos, M.: Zur Schüller-Christianschen Krankheit, Handsche Krankheit (Chester), Christian's Syndrome (die Amerikaner), Landkartenschädel (Schüller), Hypophysären Landkartenschädel (Brehme), *Schweiz. Med. Wchnschr.* 61:1173 (Dec. 5) 1931.
76. Stowe, W. R.: Case of Diabetes Insipidus Associated With Defects in the Skull, *M. J. Australia Supp.* 5, p. 144 (Sept. 10) 1927.
77. Sunderman: Cited by Henschen.
78. *Svenningson, O. K.: Generalized Xanthomatosis, *Acta Radiol.* 14:491, 1933.
79. Thompson C. Q.; Keegan, J. J., and Dunn, A. D.: Defects of Membranous Bones, Exophthalmos and Diabetes Insipidus, *Arch. Int. Med.* 36:650 (November) 1925.
80. Turner, A. L.; Davidson, J., and White, A. C.: Xanthomatosis; Some Aspects of Its Blood Chemistry and Pathology, *Edinburgh M. J.* 32:153 (April) 1925.
81. Vampré, E.: Cited by Sosman.
82. *Vlavianos G.: Beitrag zur Schüllerschen Krankheit, *Deutsche Ztschr. f. Nervenhe.* 127:248, 1932.

THE PHYSICAL CHARACTERISTICS OF DIATHERMY AND SHORT WAVE DIATHERMY MACHINES

In their discussion of the two types of diathermy machines that are used at the present time to produce high frequency electric current which will pass through the tissues producing heat but no neuromuscular stimulation, Allan Hemingway and K. W. Stenstrom, Minneapolis (Journal A. M. A., Nov. 2, 1935), refer to them as the spark gap diathermy machine and the vacuum tube diathermy machine. They assert that the newer method of heat therapy, namely, the short wave diathermy, is at present in an experimental stage. Much valuable research has been done to clarify the problems involved; at the same time there are in the literature some very confusing and misleading statements in regard to the merits of this form of therapy. For a good critical discussion they would recommend the recent article by Mortimer and Osborne. In particular, they would recommend that, owing to the lack of knowledge on many phases of this work and the indications of dangerous possibilities, the newer machines be used with the utmost caution. On the other hand, conventional diathermy is an old established form of therapy about which much is known that has proved to be of definite clinical value.

PRINCIPLES OF SAFETY IN THYROID SURGERY

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In no field of elective surgery is it quite so necessary to use every available precaution for the patient's safety as in thyroid surgery. These patients invariably shun a visit to the surgeon as long as possible, and they consider operation as a last resort for relief of severe pressure symptoms, profound toxic states, or occasionally for cosmetic improvement in a large colloid goiter. Their fear arises principally from their vague knowledge of important anatomical structures near the goiter, the ever present danger of accidental injury to the trachea, jugular vein or large arteries, and to loss of voice following the operation; as occurred in a patient they have known or heard about. They likewise have a common knowledge of the high mortality rate in severe toxic goiter and are unable to differentiate the less dangerous types from the more severe. Kind friends, too, assure them that an "inward goiter" (whatever that is) means almost certain death, for how could any surgeon get at one he could not see? Others fear that the scar will be unsightly, or that the operation will not relieve their exophthalmos or nervousness and therefore be useless. In the severely toxic group the pathological effect upon the nervous, circulatory and endocrine systems creates the identical symptoms caused by fear, i. e., palpitation, emotionalism, nervousness, tremor, flushing, pallor, rapid pulse, weakness and even exhaustion, and greatly increases their dread of surgery.

Through no fault of his own, therefore, the surgeon is finally asked to do what he can for a creature whom procrastination has often laid low with a damaged myocardium, an unbalanced endocrine system, or a general toxic state made worse from prolonged impairment of respiration due to tracheal compression. None of us would think of doing a hernia, chronic gallbladder or hysterectomy operation on any patient of such profoundly weakened condition without first putting that person in as good physical condition as possible; yet how often is the goiter patient assured that she may abandon her social plans this evening, go to the hospital this afternoon, have her goiter "slipped out" tomorrow morning and surprise her friends. Too often they are astounded and shocked by a fatal outcome!

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I prefer to group the precautionary measures as follows: (1) Preoperative management; (2) operative technic, (3) postoperative care.

The care I insist upon before operation consists in a strict physical examination, including the usually complete laboratory work, to exclude any associated diseases of importance, especially tuberculosis or syphilis; if any such be present defer operation until the internist can treat them thoroughly. Any fear possessed by the patient should then be dispelled by gaining her absolute confidence, not only in the surgeon's ability to do the operation well but that he will keep the patient's safety foremost in his mind, even returning the patient to his room without operation, if necessary, or with any single steps completed, as ligation, partial lobectomy, wound left open for further operation or closure the next day, if in his judgment the patient's life would be in great danger by continuing the operation then, and keep that promise inviolate.

Physical rest in bed is likewise essential to rest the heart and to lower the basal metabolic rate to a stabilized minimum if much above normal. A high caloric diet is forced upon all patients with a high basal rate. The length of time bed rest is needed varies with each case, from a few days to a few weeks, and I insist the pulse drop to below 120 before I remove the thyroid from any individual.

Drug administration likewise varies with individual cases. In some, exophthalmic types particularly and usually those in a toxic crisis, are greatly improved by iodine for a week or two, but its use in any case must be observed closely. If pulse rate, nervousness and basal rate are increased it must be stopped at once. The worst cases I have ever seen were some patients literally poisoned by Lugol's solution, some of them using it over a period of eight months. Quinine is often helpful to quiet the heart and lower the metabolism, but again may react unfavorably. Digitalis is needed in certain cases but causes trouble in others. I prefer to give no drugs at all until a few days bed rest give me a more natural physical balance for that particular individual. From this standard the true effect of contemplated drugs can be earlier and better judged.

In each patient who has expressed a fear of operation or becomes excited and nervous upon thinking about it, I arrange a definite routine for four or five days which will be identical with that on the operative date, varying with the needs of the case. Since

the advent of avertin I have been better able to produce more nearly ideal preoperative conditions. I give a capsule or tablet of any preferred sedative each night at about 9 p. m., a hypodermic of sterile water (or of narcotic if needed) an hour before the proposed operation time, and an enema fifteen minutes before that time. This routine is carried out daily by the same nurse with the same apparatus, exactly as will be used the morning of operation when the only variation in the daily routine is the omission of breakfast. This is cared for in either of two ways. The regular breakfast hour may be delayed for this patient until after 8 a. m., if that be chosen as the hour of operation; or when needed a basal metabolism test is run every two or three days and breakfast of course is omitted; so that the patient has no suspicion of being operated upon on any particular day. Then on the morning of his operation he has had his usual sedative the night before, gets his accustomed hypodermic (this may be omitted if it excites the patient and can be given after the avertin), the avertin is prepared (I prefer 80 to 100 mg. per kilo) and is administered by his regular nurse in the same apparatus used for his routine enema. No strange persons come into his room until he is asleep. After fifteen to twenty minutes, he is taken to the operating room wholly unconscious, prepared quickly and any necessary supplementary anesthetic given. I prefer local or gas.

This procedure is far less damaging to the patient than the old method of carting him up to the operating room and starting an anesthetic daily until he got over his fright, for we must remember that fright alone produces the cardinal symptoms of hyperthyroidism in most normal individuals and greatly magnifies them in the case of the goiter patient.

Safer Operative Technic.—The goiter surgeon ought to be familiar with the other more difficult types of neck surgery and exceptionally well versed in the anatomy of the neck. Several years ago an older surgeon, who has many successful goiter operations to his credit and has a marvelous surgical technic, remarked to me that the occasional goiter operator must have a frightful mortality as his own mortality rate though low was much higher than it ought to be. I replied that I was only an occasional goiter operator myself but had not lost a single case, probably because I had not had enough toxic ones to care for. He said, "Yes, probably so, but your own extensive experience in cancer surgery keeps you working in the

neck constantly, and I believe that is the most important factor in safer goiter surgery."

I place the skin incision in a natural wrinkle or fold so the scar will be inconspicuous. The whole operation is carried out as promptly as possible, but always working deliberately and with extreme gentleness in handling tissues or in cutting them. Retraction must be steady and gentle on the part of my assistants. I have no fixed routine as to the manner of removal of the gland, preferring not to cut the ribbon muscles if I can avoid it; but if the case requires it for exposure I do not hesitate to sever them at their upper end and later resuture them. With large lobes and a thin isthmus or if there be tracheal compression, I usually divide the isthmus and dissect out each side from midline outward, leaving a millimeter or so of gland substance on its posterior capsule if it appears fairly healthy. In this way the trachea is not disturbed by attempts to displace the lobes into the wound while they are still strongly incorporated with the pretracheal fascia, especially in those types which nearly surround the trachea.

If the lobes are large, well encapsulated and easily brought into the wound I prefer the usual method of removal from the lateral border toward the midline, leaving the desired amount of tissue one or two cubic centimeters at each pole, with early ligation of the vessels. The parathyroids and the laryngeal nerves are usually safe if we leave the posterior capsule and a thin layer of thyroid on it if healthy in appearance. Abnormally placed laryngeal nerves are always a possibility and any structure resembling them should be traced and identified before it is cut. It has always been easier for me to remove a lobe completely than to remove it subtotally, leaving gland substance at each pole or posteriorly. I usually do a total lobectomy on the more diseased side if the remaining lobe has the more healthy gland.

Crushing, squeezing or tearing the gland are largely responsible for the severe toxic symptoms that immediately follow operation. I always try to avoid such technic preferring extremely gentle handling and clean scalpel incisions. Hemorrhage is usually well controlled by early ligation of both the superior and inferior thyroid vessels and there is much less need of crushing hemostats on gland tissues. In ligating the vessels with a needle or catching them with forceps it should be done parallel with the course of the laryngeal nerves and not across their general direction. After hemostasis I usually irrigate the wound with saline, drain

each side through the wound and close the incision, the ribbon muscles and platysma with catgut and the skin with silk or horsehair. I usually apply a 5 per cent saline or 50 per cent glycerine dressing for hygroscopic purposes in bringing more secretion to the outside.

Postoperative measures vary with the patient's needs, usually ten to thirty minims Lugol's solution for a few days if tolerated, morphine or other preferred sedative p. r. n. and cardiac stimulation of caffeine, coramine or digitalis only when needed.

The skin sutures are taken out about the third day and the drains in less than a week.

I am not opposed to leaving a wound open should I feel the need of it, and I should certainly not complete the gland removal if a patient should go bad on the table, although thus far I have not been forced to do either. It has been a real joy to bring patients through safely. One had to be sent back from the operating room before the anesthesia could be started. Later she was transferred to my service anxious to be operated upon but went to pieces when definite arrangements were made. After three weeks of this routine she awoke one morning with her goiter out, and happy that it had been done without her knowledge of the exact day or hour.

Although my series of cases is small and I am still classified as an "occasional goiter operator," I have had no mortality so far, and only two cases were quite ill following operation. One, before the days of avertin, literally was poisoned with iodine for eight months before I saw her and required six weeks bed rest before I would touch her, and whom the preoperative hypodermic of morphine and hyosine did not affect as did her previous trial dose. The other patient who was quite ill developed a severe asthmatic attack followed by a purulent bronchitis and was quite ill for a week with this complication.

SUMMARY

Goiter operations can be made much safer by (1) proper preoperative attention to the correction of other existing conditions; (2) proper drug medication to support the heart, and lessen toxic symptoms; (3) adequate bed rest and forced feeding until basal metabolism and pulse are stabilized at the lowest possible level; (4) a satisfactory preoperative routine which abolishes fear; (5) extreme gentleness in the operation itself, (6) postoperative care that continues rest, diet and cardiac support.

CLINICAL AND PATHOLOGIC STUDIES OF CORONARY DISEASE

AN ANALYSIS OF EIGHTY-EIGHT CASES OBSERVED
IN ONE THOUSAND NECROPSIES

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During the last decade coronary disease has held the careful attention of many investigators and as a result of these detailed studies we now have gained considerable clinical, pathological and cardiographic information of this affliction. As in the case of every clinical entity, we first learned to recognize a classical picture; and, as time has gone on, first one paper and then another has appeared detailing some additional interesting clinical or pathological data. At the present time anyone who has had an opportunity to see these cases or has carefully followed the literature on the subject fully realizes that coronary disease may give quite a varied picture from the typical attack, which is characterized by a sudden seizure of substernal pain coming on while at rest in an individual over 40 years of age who may or may not have had an antecedent history of precordial distress. Accompanying or immediately following this sudden seizure the patient often develops severe shock with a marked fall in blood pressure, cold clammy sweat, nausea and vomiting, ashen gray color, and within a few hours or days manifests a moderate pyrexia and leukocytosis; occasionally a friction rub may be elicited if the infarct is located in an auscultatory area. After a thorough study of eighty-eight necropsied cases of coronary disease at St. Luke's Hospital and a careful survey of the literature, we felt that the following clinical features and necropsy findings would be worthy of further comment.

First, the presence or absence of pain with or without effort; second, the significance of paroxysmal dyspnea; third, sudden tachycardia as the initial clinical symptom; fourth, the frequency of death from other causes, showing marked coronary and cardiac changes; fifth, the frequent presence of concomitant lesions with special reference to gallbladder disease, and sixth, age and sex incidence.

The pain syndrome has been an extremely interesting feature in several of the cases we have studied; and one of the stimulating factors in making this survey was the death of three successive patients with acute cardiac infarction in which pain was entirely absent or negligible in

the clinical picture. On numerous occasions Herrick¹ has discussed this phase of the subject. Professor John Hay² has stressed the necessity of being aware of the atypical attack of coronary occlusion. Lisa and Ring³ reported that only slightly more than 50 per cent of their cases presented clinical features of cardiac disease, and within the last three months Willius⁴ has called attention to five cases of painless coronary occlusion observed at the Mayo Clinic. Nathan Smith Davis⁵ reported 38 per cent of his seventy-six cases demonstrated no effort or pain syndrome, and an additional 15 per cent to 20 per cent had coronary thrombosis without any history. In our series, thirty-eight cases or 43 per cent gave no history of pain. Of these thirty-eight cases, thirteen had absolutely no symptoms referable to the heart and were entirely necropsy enlightenments. The remaining twenty-five cases gave no history of cardiac or substernal distress but demonstrated dyspnea or gradual failure as the outstanding clinical manifestation. Another group of eleven patients in this study developed abdominal masquerades as the striking clinical feature, while eight others gave a history of atypical chest pain.

CLINICAL FINDINGS

| | |
|--|----|
| Number of cases with cardiac pain; i. e., ranging from characteristic features of acute occlusion to more moderate degrees of chest pain | 31 |
| Number of cases without pain, showing dyspnea or gradual failure as outstanding clinical feature.... | 25 |
| Number of cases with atypical chest pain | 8 |
| Number of cases with abdominal masquerades | 11 |
| Number of cases with no symptoms referable to heart (necropsy enlightenment) | 13 |
| Total | 88 |

It is immediately apparent that if any such figure as 40 per cent or 50 per cent of the cases of coronary thrombosis are either painless or have negligible pain, it is quite important that this knowledge be properly evaluated in all types of heart failure, especially those cases of cardiac failure occurring in patients having no valvular disease, these latter having often been rather carelessly diagnosed as just another case of chronic myocarditis.

The cause or absence of pain in all arterial diseases especially coronary disease has been the subject of considerable controversy, in our opinion the most acceptable explanation up to the present time is found in Herrick's Harvey Lecture¹ of 1930 in which he states: "It has been suggested that normally certain areas of the heart are not only less vital than others but also less sensitive. But even if not normally relatively insensitive, they may become so. At autopsy, fresh infarcts are sometimes found as-

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sociated with multiple patches of fibrosis that speak for previous obstruction of small branches, yet no pain has been noted, no pain announcing even the recent infarction. There has evidently been a very gradual and progressive narrowing of the artery by sclerotic processes. The area irrigated by the artery has become relatively inactive, relatively anesthetized by destruction of vessels, nerves and functioning muscles so that a painful response to the new obstruction is wanting. The final complete obstruction comes without a sudden shock of pain; the element of surprise is lacking as the heart is in a sense prepared for the supreme insult."

In our experience, paroxysmal dyspnea has been an important replacement symptom for pain. This symptom has been of such constancy in the painless cases that on several occasions where the help of an electrocardiogram was not available it has been the deciding point in making the clinical diagnosis. One case in particular demonstrated the value of this symptom. This patient was a man, aged 48, suffering from subacute bacterial endocarditis. Ten days before death he developed attacks of paroxysmal dyspnea without pain. On the strength of this one manifestation we ventured a diagnosis of occlusion of the coronary; at necropsy an embolus was found in the anterior descending branch of the left coronary artery with resulting massive myomalacia. Most of the painless cases whose symptomatology was largely paroxysmal dyspnea and cardiac failure, have occurred in old cases of hypertension and at necropsy these hearts have shown numerous previous insults characterized by patchy fibrosis; which again bears out the explanation given by Herrick.

Due to the slowly progressing sclerotic narrowing of the lumen of the coronaries many cases demonstrate no symptoms except gradual cardiac failure. Therefore we must not wait for a classical attack of acute occlusion before establishing a diagnosis as many cases will never present such a picture.

On several occasions we have had the opportunity of seeing the onset of an acute cardiac infarction ushered in by a sudden onset of tachycardia as the sole clinical manifestation. One illustrative case was a man, aged 62, who suddenly became faint and fell to the floor. When he was examined about a half hour later his pulse rate was 200 and perfectly regular. He complained of a fluttering sensation in the precordial region but had no pain or dyspnea at the time he was first seen nor at any later date. This patient had had two similar attacks previously and on each occasion his electrocardiographic tracing showed typical coronary

changes. In two other patients we have observed almost identical clinical pictures.

These cases are cited largely to bring out that in coronary disease there may be many variations from the classical attack of sudden occlusion; and we must realize that an acute cardiac infarction may be ushered in by paroxysmal dyspnea, by a sudden tachycardia or by a slow gradual failure as the only outstanding symptom.

The frequency of hypertension and diabetes associated with coronary disease has been carefully analyzed by several authors and our findings have only confirmed these figures. Including living cases with those dead Levine⁶ found the average age of his entire series to be 57.8 years. Lisa and Ring,³ analyzing 100 necropsy cases of coronary disease, found the average age to be 60.8 years. The average in our series was 62.7 years with seventy cases or 79 per cent between 50 and 80 years. Only five cases of this series were over 80 years of age; thirteen cases under the fiftieth year; the youngest patient was a girl, aged 23, who died of a ruptured cerebral aneurysm. Lisa and Ring³ reported myocardial infarction or gross myocardial fibrosis in 10.6 per cent of 942 necropsies. In our series, gross coronary lesions were found in 8.8 per cent of 1000 postmortem examinations.

Table 1. Age Incidence in 88 Cases

| | |
|----------------|----|
| Under 40 years | 1 |
| 40 to 50 years | 12 |
| 50 to 60 years | 26 |
| 60 to 70 years | 22 |
| 70 to 80 years | 22 |
| 80 to 90 years | 5 |
| Total | 88 |

In our series seventy-four, or 84 per cent, were males the incidence being about five males to one female. The reason for this high preponderance of males is, of course, difficult to determine, but it strongly suggests that the active mental and physically strenuous life of the male sex must have some etiological significance.

Table 2. Sex Incidence in 88 Cases

| | |
|--------------------------------|----|
| Male | 74 |
| Female | 14 |
| Male, 84 per cent of the total | |

Etiology.—Too many theories, ideas and suggestions concerning the etiology of coronary disease have been advanced to permit a thorough discussion to come within the scope of this paper; therefore, we wish to call attention to just one feature that we have observed as possibly having some etiological significance.

Of this entire series, forty patients, or 45.4 per cent, showed definite evidence of gallbladder disease. Of these forty cases, four patients had

had a cholecystectomy following a typical attack of colic and in twenty-three cases stones were found at the necropsy; the remaining thirteen cases presented various gradations of gallbladder pathology.

Table 3. Cases With Concomitant Gallbladder Disease

| | |
|--|-------|
| Stones | 23 |
| Thick wall with adhesions, no stones | 8 |
| Marked interstitial changes; chronic cholecystitis | 2 |
| Empyema | 2 |
| Cholesterosis | 1 |
| History of cholecystectomy with typical colic .. | 4 |
| Total | 40 or |
| 45.4 per cent of 88 cases of coronary disease. | |

Therefore, because 45 per cent of the cases of coronary sclerosis coming to necropsy show concomitant gallbladder disease we are immediately concerned with two considerations; first, the etiological significance and the possible plan of procedure therapeutically; and second, the recognition of the diagnostic obstacles presented in patients having two diseases either of which may give quite similar clinical pictures.

In 1907 David Riesman⁷ called attention to the development of cardiac murmurs during attacks of biliary colic which he believed were brought about by the pain causing dilation and transitory insufficiency of the mitral valve. He interpreted the development of these murmurs to indicate a weakened heart muscle and recommended that these patients should be carefully anesthetized and not subjected to long operations.

Two years later Babcock⁸ reported thirteen cases of chronic cholecystitis associated with myocardial incompetence in which he interpreted the cardiac damage to the gallbladder disease, and from the study of these cases came to the conclusion that opening and draining the gallbladder, even though myocardial incompetence was present, was attended with less danger to the patient than noninterference.

Willius⁹ in 1924 mentioned the possibility of diagnostic error because gallbladder disease and coronary sclerosis frequently coexist; and it is this particular finding that seemed exceptionally impressive to us in this study.

Willius,⁹ Roberts,¹⁰ and numerous other writers have often mentioned the remarkable and brilliant results in various types of cardiac disease following the removal of a diseased gallbladder; but after having seen several cases promptly develop coronary occlusion following the mere extraction of a tooth we are extremely doubtful if mortality figures would support any such surgical procedure as a cholecystectomy in cases of known coronary sclerosis; and furthermore, the fact that four of our cases developed coronary occlusion and died from five to eleven years after the removal of a diseased gallbladder brings up the interesting question as to whether the longevity of these patients was in-

fluenced by the surgical procedure; they certainly eventually came to autopsy because of a cardiac infarction.

Babcock⁸ stated that he believed the cardiac lesion associated with gallbladder disease was brought about as a direct result of the action of the bacteria or their toxins on the heart muscle, producing a parenchymatous myocarditis, or the lesion was caused by the direct action of the bile constituents on the muscle; in support of which he cited the frequent bradycardia found in this disease. He also suggested the possibility of a disturbance of the splanchnic circulation, secondarily affecting the systemic and cardiac circulation, or a reflex disturbance of the vagus brought on by the pain in gallbladder colic. Whether one, all or none of these theories play a role in the myocardial incompetence has as yet not been definitely determined, but certainly some such mechanism must be present to bring about a 50 per cent association of the two diseases.

Although the problem of a differential diagnosis in any severe epigastric, substernal or precordial pain is sometimes quite difficult, the possibility of a diagnostic error will be greatly minimized if we are fully aware of the frequency with which gallbladder disease is associated with coronary sclerosis. To be forewarned is to be forearmed, and a careful check-up of these cases with a double lesion will usually clarify the situation so that one may not long be misled concerning the underlying pathology of epigastric or chest pain.

Prognosis.—The prognosis in coronary disease from the standpoint of recovery from an acute attack, the probable length of life after the immediate crisis, or the residual degree of permanent disability, is extremely difficult and uncertain. Yet, from the patient's viewpoint, this phase of the subject is usually his entire interest. Except for a few generalities which we will mention later, there is practically no basis or criteria on which the observer may make accurate deductions as to the immediate or future outcome of any particular case. We have seen patients have an extremely severe attack and recover while, on the other hand, persons having apparently only mild symptoms have died. Often either a mild or severe case may seem to be making a satisfactory recovery from the acute cardiac condition and suddenly develop embolic phenomena from an intramural thrombus and die. On two occasions we have seen the symptoms of unexplained embolic phenomena lead correctly to a diagnosis of coronary occlusion.

Brooks¹¹ came to the conclusion that the prognosis in angina pectoris was largely dependent on the treatment, the cooperation of the patient and the character of the lesion.

In 1931 White¹² published an article on prognosis in coronary thrombosis in which he had analyzed 200 cases, of which 101 had died with an average duration of life of 1.5 years. Again, in 1933, this same author¹³ reports a necropsy on a case of coronary thrombosis in a man who had a typical attack at 63, and led an active strenuous life for seventeen and one half years thereafter, finally dying of apoplexy at 80 years of age. One of the most interesting facts in a survey of our cases was the observation that twenty-one patients, or nearly one fourth of the entire series, died of other causes, yet demonstrated marked coronary and myocardial damage at the necropsy.

Table 4. *Necropsy Reports*

| | |
|---|------|
| Total number of necropsies | 1000 |
| Number showing advanced coronary and myocardial changes | 88 |
| Number in which these changes were the immediate and important cause of death | 67 |
| Number showing striking changes (i. e., massive myocardial fibrosis, ventricular aneurysms, etc.) but dying from some other condition | 21 |

In an exhaustive study of the prognosis in arteriosclerotic heart disease Viko¹⁴ reported the manifestation of anginal attacks and paroxysmal dyspnea definitely shortening the length of life as compared to those cases demonstrating only one of these symptoms. He observed no case with both symptoms living longer than one year and 67 per cent were dead within six months.

Levine⁶ found the average age of the patients that recovered from an acute occlusion to be 54.7 years while in those who died the average was 61 years. From these figures he concluded that the younger individual has a better prognosis as far as immediate recovery is concerned. If we rely entirely on necropsy data, our own series shows 79 per cent of the deaths to have occurred between 50 and 80 years of age. Nevertheless, these figures may be somewhat misleading because of the following facts.

Oberhelman and Le Count¹⁵ and others have demonstrated that with advancing age and sclerosis the heart in a sense prepares itself for disaster by developing a greater and more extensive collateral circulation. Bellet,¹⁶ Pratt¹⁷ and many others have stressed the role of the thebesian vessels in the nourishment of the myocardium in health and disease. Wearn¹⁸ reported two cases of gradual bilateral occlusion of the coronaries in which he believed the thebesian system furnished sufficient blood supply to the myocardium to maintain a wage-earning life. Therefore it is reasonable to assume, if these deductions are true, that a patient 60 years of age should have a better opportunity of surviving an immediate crisis than one in the fourth decade, although the length of life of the elder patient, who in all probability has advanced

sclerosis, should not be equal to that of the younger individual; and in a general way this has been confirmed in the limited number of young individuals whom we have observed to be suffering from coronary disease.

In our experience the development of coma during an acute attack has always been an extremely grave symptom; in view of the fact we have never seen a case recover that received this great shock we are led to believe that the outcome in cases of this kind is practically always fatal.

The development of a partial heart block or a recurring ventricular tachycardia following acute cardiac infarction have been grave prognostic omens in the few cases we have had an opportunity to see. However, we have under observation at the present time a man 40 years of age who is getting along nicely although he has had a partial block ever since his occlusion two years ago.

Treatment.—In view of the fact that acute cardiac infarction has only been recognized clinically for a comparatively few years the question, "what may be the best method of handling the various phases of the disease," is still subject to controversy.

The sudden onset of agonizing pain requires heroic doses of morphia, often as much as a grain, before relief is secured and should be given freely thereafter for relief from restlessness or recurrences of distress.

Rizer¹⁹ has called attention to the frequency with which the pain of coronary occlusion may be relieved by the use of oxygen. We have never used an oxygen tent on any of our cases, but the rationale of this procedure rests upon a sound basis if we accept the anoxemia theory of cardiac pain in acute infarction.

Soon after onset the patient often develops shock, which may improve greatly with the relief from pain. However, if the blood pressure shows an extreme drop or the peripheral circulation shows marked stasis it may be necessary to use caffeine, adrenalin, strophanthine or other stimulants, with hot blankets, heating appliances and all the usual shock combating measures.

Following in the wake of a sudden occlusion there develops in the heart an area of infarction with softening, myomalacia and often an intramural thrombus. Therefore, we are immediately confronted with several considerations. First, a heart in this condition should be protected from all strain. The patient must be kept absolutely in bed, as free as possible from all exertion, for several weeks to allow healing of the necrotic area. Opinions differ as to how long one of these patients should retire from active life. Some writers on this subject advise two or three months of rest; others recommend longer periods of convalescence. Sutton and

Davis,²⁰ studying the effects of exercise on experimental cardiac infarction in dogs, found that early exercise following ligation produced thin scars with aneurysmal bulging, while those animals allowed to rest several days before exercise was started developed well contracted scars without thinning of the ventricular wall. Unfortunately, this evidence could not be transferred into clinical facts applicable to human hearts because the study was carried out in young dogs with normal hearts and the authors concluded that the hearts in these animals were possessed of far greater reserve than the usual arteriosclerotic human heart in which occlusion usually occurs. However, in this respect it has been extremely interesting to note that in a number of the cases observed in this study there was a most striking degree of aneurysmal development in a majority of the cases who had "carried on" without a sufficient rest period following an acute infarction. Although we personally know a few patients who have had attacks over a period of eight or ten years and are still engaged in active work, it is our opinion that the longer a patient refrains from an active physical life the longer he may expect to live; and whenever it is financially possible we have no hesitancy in recommending permanent retirement for these patients, even though our series shows a high percentage of deaths from other causes.

Unless there is marked circulatory failure, the danger of emboli or cardiac rupture forbids the use of drugs to increase cardiac tone during the first two or three weeks following a seizure. Many cases develop cardiac failure weeks or months after an acute occlusion and, although digitalis may be used in full therapeutic doses at this time its efficacy is usually quite limited.

Due to the marked increase of irritability of the myocardium that often follows an acute occlusion we fully subscribe to a recent and timely suggestion by Kilgore²¹ in which he stressed the value of giving quinidine routinely as a prophylactic measure in the hope of preventing disastrous disturbances of the rhythm mechanism.

Whenever a ventricular tachycardia develops, regardless of the time relation to an acute occlusion, quinidine in large doses should be given until normal rhythm is established. We have had one patient with a ventricular rate of 200 per minute following an occlusion in whom it was necessary to give several hourly doses of 7 grains each before normal rhythm was established.

CONCLUSIONS

1. In 1000 consecutive necropsies the incidence of advanced coronary disease was noted in 8.8 per cent of the cases.

2. In this series, 43 per cent of the cases had

no history of pain, and in 14.7 per cent no symptoms referable to the heart were elicited.

3. Paroxysmal dyspnea and slow progressive myocardial failure may be highly significant clinical manifestations in the absence of pain.

4. Not infrequently a sudden attack of tachycardia is the sole clinical manifestation of myocardial infarction.

5. Associated gallbladder disease was present in 45 per cent of the cases in this series.

6. Death occurred in 23 per cent of this series of 88 cases from causes other than the advanced coronary disease which was present.

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BIBLIOGRAPHY

1. Herrick, James B.: The Coronary Artery in Health and Disease, Harvey Lectures 1930 and 1931.
2. Hay, John: Certain Aspects of Coronary Thrombosis, *Lancet* (October 7) 1933.
3. Lisa, James R., and Ring, Alfred: Myocardial Infarction, Analysis of 100 Necropsies, *Arch. Int. Med.* (July) 1932.
4. Willius, F. A.: Acute Cardiac Infarction Without Pain, *Mayo Bulletin* (July 11) 1934.
5. Davis, Nathan Smith: Coronary Thrombosis Without Pain, Its Incidence and Pathology, *J. A. M. A.* (May 21) 1932.
6. Levine, Samuel A.: Coronary Thrombosis, Its Various Clinical Features, *Medicine* 8:3, 1929.
7. Riesman, David: The Development of Cardiac Murmurs During Attacks of Biliary Colic, *J. A. M. A.* (May 11) 1907.
8. Babcock, Robert H.: Chronic Cholecystitis as a Cause of Myocardial Incompetence, Report of 13 Cases, *J. A. M. A.* (June) 1909.
9. Willius, F. A., and Brown, G. E.: Coronary Sclerosis, An Analysis of 86 Necropsies, *Am. J. M. Sc.* 1924.
10. Roberts, Stewart R.: Diagnostic Relations Between the Gallbladder and Heart, *Illinois M. J.* (November) 1929.
11. Brooks, Harlow: Angina Pectoris, New York, Harper & Bros. 1929.
12. White, P. D., and Bland, E. F.: A Further Report on the Prognosis of Angina Pectoris and of Coronary Thrombosis. A Study of 500 Cases of the Former Condition and 200 Cases of the Latter, *Am. Heart J.* 7:1 (October) 1931.
13. White, Paul D.: Longevity After Coronary Thrombosis, *J. A. M. A.* (January) 1933.
14. Viko, L. E.: Prognosis in Arteriosclerotic Heart Disease, *J. A. M. A.* (August 25) 1934.
15. Oberhelman, H. A., and LeCount, E. R.: Variations in the Anastomosis of the Coronary Arteries and Their Sequences, *J. A. M. A.* (April 26) 1924.
16. Bellet, Samuel et al.: Nourishment of the Myocardium Through Thebesian Vessels, *Arch. Int. Med.* (January) 1933.
17. Pratt, J. H.: The Nutrition of the Heart Through the Vessels of Thebesius and the Coronary Veins, *Am. J. Physiol.* 1:92, 1898.
18. Wearn, J. T.: The Role of the Thebesian Vessels in the Circulation of the Heart, *J. Exper. Med.* 47: 1928.
19. Rizer, R. I.: Oxygen in the Treatment of Coronary Occlusion, Preliminary Report, *Minnesota Med.* 12:506 (August) 1929.
20. Sutton, Don C., and Davis, Milton D.: Effects of Exercise on Experimental Cardiac Infarction, *Arch. Int. Med.* (December) 1931.
21. Kilgore, Eugene S.: Treatment of Acute Coronary Occlusion, *J. A. M. A.* (February 4) 1933.

ANALYSIS OF APPARENT INCREASE IN HEART DISEASES

Alfred E. Cohn, New York (*Journal A. M. A.*, Nov. 2, 1935), demonstrates, by a set of curves, the net increase in circulatory diseases after the age of 60. The figures given describe the condition in the U. S. registration area of 1900. They may be representative of the country as a whole, but, seeing how closely diseases of all sorts are dependent on the environment, the climate in the West and South may actually require a different description of the course of cardiac disease for these states. Beginning with the age of 40 there has been a rise in the death rate from chronic cardiac diseases, decade by decade, from 1900 to 1930.

A SURVEY OF THE MANAGEMENT OF INTRACAPSULAR FRACTURE OF THE NECK OF THE FEMUR

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It is with considerable hesitancy that I bring before you for your consideration a condition about which so much has already been written as intracapsular fracture of the neck of the femur. My only justification for doing so lies first in the fact that this is an important fracture comprising probably 5 per cent of all fractures; second, the results from treatment on the whole are not satisfactory, and third, the belief, since so much has been published from so many angles on the management of this condition and so many different forms of treatment suggested that an attempt to catalogue the accepted methods of treatment and evaluate them so far as possible might not be inappropriate before a meeting of this kind.

It is difficult to appreciate that while intracapsular fracture of the neck of the femur probably has a history as old as the human race, its effective treatment dates back only three decades. It was in 1904 that Royal Whitman enunciated the principle that no matter how greatly an intracapsular fracture of the neck of the femur might be at disadvantage compared to other fractures, healing might be expected in the majority of cases if approximation of the fractured surfaces was secured and maintained sufficiently long; and he advocated the abduction method of treatment as fulfilling these requirements. This teaching is today the basis of all efficient treatment of intracapsular fracture of the neck of the femur. The importance of Whitman's work can only be appreciated when it is recognized that the conventional methods of treatment used previously to the introduction of his method, i. e., direct traction or immobilization with splints and sand bags or no treatment at all, were so unfortunate in their results that intracapsular fracture of the neck of the femur was looked upon by the laity and the profession as an irreparable calamity. Today with the abduction method of treatment the outlook is entirely different. The acceptance of Whitman's teachings was slow and in fact, strange as it may seem, it is not universally accepted or at least used today by the profession; yet it can be stated without fear or contradiction that the introduction of the Whitman abduction method marked a new epoch in the

gloomy history of intracapsular fracture of the neck of the femur; it is the story of this epoch down to the present time I propose to follow today. Most of what is to follow is undoubtedly familiar to you for my purpose is not to propose a new method of treatment for intracapsular fracture of the neck of the femur but to present a brief summary of the entire field of treatment with the thought that it might help us to arrive at a sense of values with respect to the management of this serious fracture.

Looking back over the span of thirty years during which a rational method of treatment for intracapsular fracture of the neck of the femur has been used or has at least been available it may be divided into two periods: (1) the period of closed reduction and external splinting to maintain reduction; (2) the period of open reduction and internal splinting to maintain reduction. The first period may be considered to have lasted from 1904 until the present time; the second to have come into use since 1925. It is true that through all these thirty years and as early as 1889¹ sporadic attempts were being made at open reduction and internal fixation but its real impetus came from the work of Smith-Petersen,² begun in 1925 and published in 1931. Albee's use of the bone graft reported in 1913 antedates this work but originally this procedure was used in the treatment of nonunion and it still has its greatest field of usefulness in this type of case. At the present time both the closed and open methods are being extensively used; this discussion will concern itself with a brief résumé of these methods and an attempt to indicate the place which each has in the treatment of intracapsular fracture of the neck of the femur.

CLOSED REDUCTION AND EXTERNAL FIXATION

As stated, Whitman in 1904 published his first report on the abduction treatment of intracapsular fracture of the neck of the femur. Since this method embodies the principles used in all present day methods it seems worth while to review it. Briefly, as described by Whitman, the method is as follows: The anesthetized patient is placed on a pelvic support equipped with a peroneal bar against which the perineum is firmly drawn by two assistants making traction on the legs; this traction completely reduces the shortening on the injured side. During this maneuver the surgeon lifts the thigh of the injured side upward if it is below the plane of its fellow. The limb is then rotated slightly inward to oppose the fragments completely. Both legs, under manual traction and extended, are then abducted to the full limit.

¹Read at the 78th Annual Meeting of the Missouri State Medical Association, Excelsior Springs, May 6-9, 1935.

When this limit is approached on the fractured side tension on the capsule assures the alignment of the fragments and forces a resistant contact (mild impaction). A long plaster cast is then applied reaching from the nipple line to the ends of the toes fixing the injured limb in complete abduction, full extension and slight internal rotation and assuring the maintenance of reduction. This cast remains on for a minimum of three months.

It would be unnatural to expect that the profession would accept the procedure described by Whitman without such attempts at modification and improvement as experience and improved methods of examination might suggest, and such indeed has been the fact. Numerous variations in technic have been proposed many of which are unimportant and need not be mentioned; there are three however which are of fundamental importance and these deserve some discussion. They are: (1) Modification of the method of reduction; (2) modification of the position in which the fracture should be held, and (3) modification in the form of external splinting.

The most generally accepted change from Whitman's method of reduction is that which Leadbetter³ has advocated. Leadbetter's procedure is as follows: With the patient anesthetized the undamaged extremity is harnessed to the foot support of a traction table. The injured extremity is flexed in the hip to 90° with the knee flexed on the thigh to a right angle. Direct upward traction with slight adduction is then made on the flexed thigh to bring the proximal end of the distal fragment forward from its posterior position. The thigh is then internally rotated approximately 45°. The leg is then slowly circumducted into abduction, internal rotation being maintained and brought into complete extension. Following this maneuver the heel is allowed to rest on the extended palm of the surgeon's hand; if reduction is complete the leg will not evert itself; if there is not interlocking of the fragments the leg will slowly rotate externally and the manipulation must be repeated. If abduction is carried too far tension on the adductor tendons can be felt and this abduction should be relaxed until this disappears. If internal rotation is too great the leg under the heel-palm test will rotate outward until the proper degree of rotation is reached.

Leadbetter claims that a more accurate reduction can be secured by his method than by that of Whitman because flexion relaxes all the structures passing from the pelvis to the upper end of the femur and this relaxation permits of accurate interlocking of the

fragments by the subsequent internal rotation and circumduction movements. He states that in his opinion accurate reduction cannot be secured through abduction and tension on the capsule by internal rotation as internal rotation does not make the fibers of the capsule taut. Notwithstanding Leadbetter's positive statements in criticism of the Whitman method hundreds of excellent reductions have been secured by its use and it is efficient. However, Leadbetter's method of reduction has been accepted as a distinct improvement and is being very widely used today; in our own clinic it has been routine for the past two years and our experience with it has been most satisfactory.

As to modification in the position in which the fractured extremity should be fixed, Whitman recommends extreme abduction and slight internal rotation; it has been our experience that moderate abduction with strong internal rotation as determined by the Leadbetter test is the optimum position in that it gives better apposition and firmer contact of the fragments, at least in transverse fractures. With oblique fractures of the neck internal rotation must be used with caution and abduction should be somewhat increased. In considering position I should like to state that in my opinion a slight valgus deformity or increase in the angle of the neck of the femur is a preferable position in transverse fractures to an accurate restoration of the neck contour. There are two reasons for this: (1) in the valgus position the thrust of the distal fragment against the proximal fragment is an impacting one instead of a distracting or bending one as is the case when the reduction is accurate; (2) the valgus position elongates the neck and in part compensates for the absorption and consequent shortening which always occurs following an intracapsular fracture of the neck of the femur and so reduces the probability of a limp.

It seems unnecessary to discuss plaster fixation of fractures of the neck of the femur except to call your attention to the advantage of the short double spica over the long single spica originally used. By using the short double spica the plaster need not surround the abdomen and chest but extends to just above the crest of the ilium; this allows greater freedom for breathing, does not constrict the abdomen, permits the assumption of a semisitting position, facilitates the turning of the patient and gives firm fixation. Its advantages are definite and its use is constantly becoming more widespread.

The most important innovation in external splinting is the Roger Anderson Well leg

traction splint which has had so much publicity. It is claimed for this method that accurate reduction is easily secured, the apposition of the fragments is well maintained and great freedom of movement may be permitted to the patient early, even to the extent of allowing the use of a wheel chair on the day following its application and thus avoiding prolonged recumbency and its unfavorable sequelae. We have used the Roger Anderson method in 15 cases; in this series we have had bony union in 2 cases, nonunion in 11 cases with 2 deaths. It is evident from these figures that in our hands at least the results have not been satisfactory. Our study of these cases has led us to the following conclusions: (1) It is not difficult to secure an apparent reduction by this method but it is difficult to secure actual interlocking of the fragments or mild impaction; this is necessary for bony union; (2) while it is possible to put the fragments into an accurate or fairly close alignment with this splint the constant traction maintained tends to hold the fragments apart and prevent or minimize interlocking or impaction which is universally admitted to be of paramount importance for healing. The blood supply of the proximal fragment or head in intracapsular fracture of the neck of the femur is poor under the most favorable conditions. Revascularization of the proximal fragment must occur largely by the growing across into it of capillaries from the well vascularized cancellous bone of the distal fragment; this can be expected to occur only if firm contact is established between the two fragments (impaction or interlocking) and this contact is constantly maintained sufficiently long to insure a fairly complete restoration of the blood supply to the head.

Without attempting to pass final judgment on the Roger Anderson procedure we feel that in our hands it is a far less efficient method than reduction by manipulation and fixation in an efficient plaster cast. Personal conversations with others who have used it with indifferent success would indicate that they have had about the same type of difficulties that we have experienced in our clinic. We feel then that while this splint is efficient in intertrochanteric fractures and probably those of the shaft so far as intracapsular fracture of the neck of the femur is concerned the Roger Anderson splint should be used with extreme caution and with a realization that it is not fool proof or infallible, and that it requires the most careful supervision and frequent check up by roentgenograms.

This brief résumé has covered in a very

sketchy manner the closed reduction and external fixation method in the treatment of intracapsular fracture of the neck of the femur as advised by Whitman and the generally accepted changes in technic which have been introduced since Whitman's original publication. The advantages which have accrued from the introduction of a rational treatment of this fracture can best be demonstrated by comparing the results before and after its introduction. A British fracture committee about twenty years ago stated that only 22 per cent of the cases treated by the older conventional methods secured a good result even by the weight bearing standard and that only 13.8 per cent in cases over sixty years of age had good results. Sir Robert Jones states that Katzenstein reported in 1928 that in 119 cases of transcervical fracture only 11.5 per cent secured good results by the old methods of treatment. Walker in 1914 reported 112 cases treated at Bellevue Hospital in New York in 1906 and 1907 by old methods with 13 per cent good results. The most reliable figures on the results obtained by the abduction method used in detail or principle are those of the fracture committee of the American Orthopedic Association published in 1929-1930. This report shows that in 210 cases from eight clinics, 53.8 per cent had firm bony union at the end of one year or more after treatment had been instituted. Reggio⁴ reported 60 per cent good results in a large series at Massachusetts General Hospital; Willis Campbell of Memphis reported 70 per cent. The figures from our own clinic in 68 cases are 48 or 70 per cent bony union; 10 or 14.7 per cent nonunion with 9 deaths or a mortality of 13 per cent. The mortality varies considerably but a fair average may be assumed to be from 13 per cent to 25 per cent. I should add that in our private practice the percentage of bony union is distinctly higher and the mortality only 5 per cent.

From these figures the conclusion is inescapable that the Whitman method has been able to improve our results in intracapsular fracture of the neck of the femur to a most gratifying extent. However, it is equally evident that the results are far from satisfactory and should be capable of still further improvement. Admittedly, there seems to be certain intracapsular fractures of the neck of the femur which are doomed to nonunion even with the best treatment at present available because of death of the head from some interference with the blood supply, because of interposition of capsule or soft parts between the fragments or because of some obscure reason for defective osteogenesis.

However, in addition to these cases there is still a high per cent of nonunion which is traceable to failure to secure adequate reduction or inefficient fixation, or both. It is this latter group which has stimulated the profession to continued efforts to improve the technic of reduction and fixation, and it is in the pursuit of this objective that the open reduction of this fracture and the use of internal fixation has entered into the picture.

OPEN REDUCTION AND INTERNAL FIXATION

There can be no question but that at the present time there is a manifest tendency toward operative treatment of recent intracapsular fractures of the neck of the femur. Considering the age of the patients in whom this fracture is most common, that is, those over fifty, it would seem incumbent on those who seek to replace the accepted method of closed reduction and external fixation with an operative procedure, that they show that the method they propose will not increase the immediate mortality and will greatly diminish or altogether prevent the unfavorable results of conservative treatment. Open reduction certainly gives a far better opportunity to reduce the fracture accurately, remove interfering soft tissue and secure impaction or interlocking of the fragments than does any closed method of reduction. Whether the actual results are better can only be determined by comparative studies. There are two sets of figures on the results of the open treatment of intracapsular fracture of the neck of the femur which are available for comparison with the results of closed reduction. These are the Albee figures reported in 1929⁵ and those of Smith-Petersen reported in 1931.²

Albee using an anterior incision exposed the fracture, freshened the edges and brought the fragments into apposition. Through a second incision over the trochanter a one-half inch drill hole was made extending up through the neck of the femur into the head; through this drill hole was driven a bone graft taken from the tibia and doweled to fit the canal. This procedure reduced the fracture, splinted the fracture internally and provided a pathway for revascularization of the head. Following the closure of the wounds the extremity was enveloped in a plaster cast from the nipple line to the ends of the toes which remained on until firm union occurred, approximately four to six months. By this method used in 39 cases Albee secured firm bony union in 38 or 97.4 per cent. All these cases were not fresh fractures since the series included many cases which had failed to secure union by other methods. The inclu-

sion of these cases might then be open to criticism except that they probably comprise a more rather than a less difficult class of case for securing bony union than in fresh fractures. In 1932 Ellis Jones⁶ proposed using a graft taken from the trochanter thus simplifying the Albee method considerably. This method has attractive features but since Jones reported no end results its efficiency remains to be determined. It is however decidedly more applicable to the treatment of fresh fractures of the neck of the femur than the Albee method which has its greatest field of usefulness in nonunion.

Smith-Petersen's method of nailing fresh fractures was observed for five years before the end results were reported and his conclusions constitute the most reliable evidence of the efficiency of operative reduction and internal splinting of fresh fractures that is available. The Smith-Petersen procedure is, in brief, the exposure of the fracture site through a Smith-Petersen incision, accurate reduction of the fracture and the supplying of internal splinting through a specially constructed three-flanged nail passed from the trochanter up through the neck into the head and thoroughly driven home thus firmly impacting the fragments. After closure of the wound the extremity is suspended in a Thomas or Hodgen splint with five pounds of traction for approximately six to eight weeks after which time weight bearing with a light hip spica is permitted. Support in the form of a plaster or leather spica is worn from six to eight months depending upon the rate of repair as shown by the roentgenograms. It should be stated that such ambulatory protection for at least this length of time should be provided no matter what form of treatment is used. With the Smith-Petersen method in a series of 31 cases from two clinics, 26 or 83.8 per cent resulted in good bony union one year or more after the treatment had been instituted; the mortality was 10 per cent. The majority of Smith-Petersen's personal cases which numbered 24 were between 50 and 70 years of age. The results in our clinic with the Smith-Petersen nail were as follows: Total cases 9, bony union in 7 or 77 per cent, deaths 2 or 22 per cent. One of these deaths could in no way be attributed to the operation performed and the real mortality should be 11 per cent. The one death resulted from pulmonary embolism.

A comparison of the end results of the abduction method with bony union in from 53.8 per cent to 70 per cent and a mortality of from 13 per cent to 25 per cent, with the end results of the open reduction and internal

fixation, Albee 97.4 per cent bony union and Smith-Petersen 83.8 per cent with a mortality of 10 per cent, would indicate that the operative method gives decidedly better results and a lower mortality. Unfortunately, however, the number of end results of open reduction now available is not as yet sufficiently large to allow definite conclusions to be drawn on the relative merits of these two methods. The mortality percentages are also not comparable in that probably most of those operated upon were selected cases which is not true of the closed method. All that can be said is that apparently the end results are better but more time is necessary before a final decision can be made.

What position then should be taken toward the method to be used in the treatment of intracapsular fracture of the neck of the femur in the fresh case at the present time? It is impossible for me to speak for others but in our clinic we have reached the following conclusions which constitute our procedure:

1. The Whitman abduction method with modifications is the method of choice.

2. With the obese type of patient who presents definite difficulties in maintaining firm fixation by plaster cast open reduction with the use of the Smith-Petersen nail is used providing there are no contraindications to surgery.

3. If anterior-posterior and lateral roentgen rays indicate unsatisfactory reduction open reduction and fixation with a Smith-Petersen nail is proceeded with.

4. If after three months of conservative treatment failure of union is evident by the roentgen ray and physical examination, then a Smith-Petersen nail augmented by a small bone graft taken from the trochanter and placed along the neck and into the head of the bone or an Albee bone graft is advised.

The position as outlined is taken because the results of conservative treatment in our hands has proved satisfactory enough to justify its use as a routine procedure. The added risk which accompanies surgery in the aged, the danger of sepsis and the possibility of embolism constitute sufficient reasons in our opinion for considering open reduction the method of second choice except in special cases.

At the present time a number of procedures for applying internal fixation without open reduction are being used. These methods by eliminating extensive exposure and reducing the danger of shock may eventually prove the solution of the problem of intracapsular fracture of the neck of the femur; at the present time however they have not

in our opinion established themselves sufficiently to be considered as anything but the trial stage and so will not be discussed.

There is one aspect of intracapsular fracture of the neck of the femur which must be touched upon to complete the picture and that is nonunion. Nonunion of this fracture is indeed a calamity; when it occurs in those still in the active period of life it means disability and inability to earn a living; in the old, it means chronic invalidism.

Before discussing the procedures which are generally used to overcome the unfortunate results of nonunion, I desire to call to your attention a situation which seems to me to have a most important bearing upon the entire subject of such nonunion. At a meeting of the Western Surgical Society in 1934 Henderson of the Mayo Clinic in a paper on the treatment of nonunion of intracapsular fracture of the neck of the femur reported two series of results which are very suggestive. In a series of 58 cases of nonunion in which the nonunion had existed on an average of 14 months he secured union in 69.8 per cent of the cases by using what he considered the best method of treating this condition; namely, an Albee bone graft. In a second series of 9 cases in which nonunion had existed only three months he secured 100 per cent union although in this series he used what he considered an inferior method of treatment; namely, a beef bone peg. Perhaps it is not fair to compare these two series of cases but it seems impossible to avoid the conclusion that when the problem of nonunion is attacked early a decidedly higher per cent of good results may be expected than if the nonunion is of long standing. It is very firmly my conviction that nonunion can in the majority of cases be determined by roentgen ray at the end of the third month; certainly at the end of six months. Once it is evident that union cannot be expected by the method of treatment being used the decision should be made at once by the surgeon and the patient whether the nonunion is to be accepted or steps taken to attempt to secure union. There is no excuse for allowing a nonunion to go on for a year and a half to two years and a half before attempting to correct it. As long as the profession fails to face the situation and allows nonunion to go on for months after it has become evident in the vain hope of a miracle occurring, so long will operations for nonunion give unsatisfactory results and the more often an operation of a reconstruction type will be necessary. The occurrence of a fairly high per cent of nonunion in intracapsular fracture of the neck of the femur

has caused considerable attention to be focussed upon measures designed to correct the nonunion or minimize the resulting disability. Of the procedures which are used in the treatment of nonunion of intracapsular fracture of the neck of the femur there are two which aim at securing union and three which abandon all attempts at union but aim at reconstructing the hip joint for the purpose of securing a useful extremity. The two methods which strive for bony union are the Albee or Jones bone graft operation and the Smith-Petersen nail. The best forms of reconstruction operation are the Whitman, the Brackett and the Albee.

The Albee (or Jones) bone graft operation for ununited fracture is the same as that for fresh fracture of the neck of the femur and need not be repeated here. It has given excellent results in the hands of Albee (90 per cent), Henderson (69.8 per cent) and others and offers a reasonable expectation of securing bony union. In our clinic a bone graft was used in only four cases in which the average duration of nonunion was 14 months; all secured bony union. Its disadvantages are that it is an extensive procedure and should not be undertaken unless the patient is a good surgical risk, that it requires a long period of immobilization in plaster and prolonged after-treatment without certainty of success and that frequently changes of a degenerative arthritic character later develop in the joint interfering with satisfactory use, even after the long period of treatment which has been undergone.

The Smith-Petersen nail has been used to some extent in nonunion. Smith-Petersen secured union in three out of four cases. Others have used it but their statistics are not available. In our clinic for nonunion we have used the Smith-Petersen nail augmented by a moderate sized bone graft taken from the trochanter, very much after the method of Jones. This graft is imbedded in a groove cut along the neck of the femur and extending up and well into the head. This method was used in 8 cases with an average duration of nonunion of 18 months; bony union was secured in 6, or 78 per cent; there was one failure and one case is still doubtful. The advantage of combining the nail with a graft is that the period of absolute immobilization need not be longer than six to eight weeks as compared with the much longer time necessary if the bone graft alone is used. This is too small a series to allow definite conclusions to be drawn as to its efficiency but it is at least suggestive.

The Whitman⁷ reconstruction operation is probably the most widely used of the re-

construction procedures. For the technic I refer you to Whitman's own article. The results are only fair and those who have done a number of these operations will admit that many are not markedly improved; on the other hand some very satisfactory results are obtained; on the whole it may be classed as a useful procedure. The operation must be carefully done and sufficient neck secured to insure that the reconstructed head will remain in the acetabulum. Later, arthritic changes are not unusual. From our own experience with this operation which has not been large, 7 cases with 5 satisfactory results, 1 failure and 1 death, we consider it a justifiable procedure in those cases of long standing nonunion which are painful and incapacitating; in cases with marked absorption of the neck and in cases with death of the head. It is not a particularly shocking operation and the patient can be up in about six to eight weeks.

The Brackett procedure is one which has not had wide popularity but is a very satisfactory method of reconstructing the hip joint. It differs from the Whitman method in that the head is not removed. The procedure in general is exposure of the fracture site, removal of the tip of the greater trochanter with the attached muscles, rounding off the end of the trochanter and hollowing out the head to give a concave area into which the rounded off end of the trochanter is firmly thrust. The tip of the trochanter with the attached muscles is then sutured to the shaft of the bone lower down as in the Whitman procedure. The advantages of this operation are that it brings a large area of well vascularized cancellous bone into contact with the poorly vascularized head thus favoring revascularization and union, and that if successful it gives a more nearly normal joint. Its disadvantage is that it requires a long period of immobilization, three to four months. We have had only four such cases but all have had very satisfactory results.

The Albee⁵ reconstruction method was first reported in 1919. Albee claims 78 per cent successful results. We have had no experience with this method and refer you to Albee's article.

SUMMARY

Unquestionably the nonoperative treatment using the Whitman abduction method with such modifications as tend to improve its efficiency is the treatment of choice today. Satisfactory results are being secured and until a sufficient number of cases treated by open reduction can be assembled to prove the

superiority of that method of treatment it will remain the choice of treatment. In the hands of experienced surgeons the method of open reduction with the use of internal fixation seems to promise more certain bony union and perhaps less mortality, but this method should be reserved for use in clinics treating a large number of fractures of the neck of the femur, at least until it has been thoroughly tried out and more or less standardized. It is a major surgical procedure and not lightly to be undertaken. In the cases of evident nonunion at the end of from three to six months or longer operative interference is not only justified but demanded unless there are definite constitutional contraindications; otherwise the individual will be condemned to a lifetime of discomfort and incapacity. When possible in nonunion a bony union should be sought through the use of a bone graft or the Smith-Petersen nail, or a combination of these two; when this is impossible one of the types of reconstruction operation is indicated in properly selected cases as affording the best expectation of giving a useful weight bearing extremity.

Finally may I say that the record of the manner in which the profession has handled the problem of intracapsular fracture of the neck of the femur is not one of which we may be proud. Even today an astonishing number of these fractures are inadequately treated in spite of the widespread publicity given the poor results and the emphasis which has been placed upon the principles of treatment necessary for a successful outcome. In the past a nonunion of the femoral neck was looked upon as an act of Providence, undesirable but unavoidable; today the public is demanding a different result and is viewing nonunion not with resignation but with a doubt in their minds as to whether it might not have been prevented by more careful or more capable treatment. It behooves the medical profession to realize this and insist that intracapsular fracture of the neck of the femur be recognized as a serious accident deserving all the study, care and skill we have at our command. It is in this way and only in this way that our patients will receive the best results.

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BIBLIOGRAPHY

1. Koenig: *Lehrb. d. Sp. Chir.* 5th edition, 1889.
2. Smith-Petersen, M. N., et al: *Intracapsular Fractures of Neck of Femur*, *Arch. Surg.* **23**:715 (November) 1931.
3. Leadbetter: *J. Bone & Joint Surg.* (October) 1933.
4. Reggio, A. W.: *Fractures of Femur Neck*, *J. Bone & Joint Surg.* **12**:819 (October) 1930.
5. Albee, F. H.: *Treatment of Fractures of the Neck of the Femur*, *J. Florida M. A.* **18**:11 (July) 1931.
6. Jones, Ellis: *Trochanteric Transplantation in Treatment of Fractures of Neck of Femur*, *J. Bone & Joint Surg.* **14**:259 (April) 1932.
7. Whitman: *Surg. Gynec. & Obst.* (January) 1921.

THE HEART IN HYPERTENSION

George Fahr, Minneapolis (*Journal A. M. A.*, Nov. 2, 1935), points out that 55 per cent of the appalling death rate consequent to essential hypertension is due to heart failure. Moreover, heart failure of some degree is nearly always present in cases of essential hypertension in which death occurs in uremia or from apoplexy or cerebral softening. The heart in hypertension shows left ventricular hypertrophy and dilatation with varying grades of replacement scarring in the muscle. There is some coronary arteriosclerosis present in 90 per cent of the cases. The coronary narrowing is responsible for the scars found in the heart muscle. A very high percentage of patients with angina pectoris and coronary arteriosclerosis have high blood pressure complicating the cardiac picture. Hypertension and coronary arteriosclerosis are so intimately and frequently associated that they should be considered together and the term "hypertensive heart disease" or "hypertension heart" should connote coronary involvement. What has been termed "chronic myocarditis" is usually the result of high blood pressure and coronary artery disease and not the result of infection. Heart failure in the clinical sense does not develop in hypertension until many years (from ten to twelve) have passed unless the coronary disease accompanying the high blood pressure becomes very severe or unless some other cardiac complication is present. Many patients with hypertension live fifteen years or more and finally die of one of the other consequences of hypertension, though some degree of heart failure may have been present previously or at the time of death.

HYSTERICAL PARALYSIS AND ITS TREATMENT

According to Abraham Myerson, Boston (*Journal A. M. A.*, Nov. 16, 1935), hysteria, like many another concept of medicine, is a fusion of conditions that resemble but are not identical with one another. From the hysterical state that is a total alteration of personality to the case in which hysterical manifestations appear as a sort of foreign body in the personality is a wide gap, which extends from an innate or constitutional disorder to an easily curable condition. The cases presented have a physiology or, at any rate, a physiologic psychology which, once understood, opens the doors to a rapid cure. But unless their mechanism of disability is understood the patients may be markedly incapacitated and wander from physician to physician vainly seeking help. In other words, a superficial pathologic condition blocks the normal conduct reactions of the individual as thoroughly as the deeper lying disorder in those cases in which hysteria is really a psychosis demoralizes the individual. The first cases of the group make up a sample wherein there is disturbance in the flow of muscular power which constitutes the so-called hysterical paralysis. Something occurs, either accident, injury or disturbing emotional state, by which a part becomes immobilized for a time. In its genesis the paralysis represents what the author calls the hysterical amnesia for the proper interaction of muscles to produce motion. More simply, there is a sort of forgetting of the mechanism of successful motion and a substituted disorder, which produces paralysis. The cases he states are undoubtedly of the kind that make up the roster of miracles, by which healers, saints and shrines build up their reputation. They are recorded to show that the pathologic condition disappears when the symptoms are explained physiologically and the therapeutics is rationally directed.

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DECEMBER, 1935

EDITORIALS

MEDICAL INFORMATION BUREAU ESTABLISHED

A Medical Information Bureau has been established by the Association, its activities being directed by the Committee on Public Policy. The objects of the Bureau are (1) to facilitate the dissemination of authentic information on public health matters to the public, the press, lay and charitable organizations as well as to Association members; (2) to expose and suppress quackery, and (3) to promote a better understanding between the public and organized medicine. The Bureau was established in accordance with an action by the House of Delegates at the Excelsior Springs Session.

The Bureau is the outcome of a constantly increasing demand on the Association for information covering many questions allied with medicine. The Association in rendering such service to the public indirectly renders a service to the profession and therefore has encouraged this phase of its activities. In order to carry this on efficiently it became necessary to maintain and correlate the miscellaneous information that might be required. The Bureau has drawn on many sources to obtain authentic information.

A file and card index has been established in the office which includes nostrums, charlatans and quack institutions; i. e., alcohol, tobacco and drug habit cures; cancer cures and treatments; tuberculosis cures; cough remedies; cosmetics and allied preparations; deafness cures; female weakness cures; nostrums for kidney diseases and diabetes; mechanical apparatus and the quackery of the drugless healer types; medical institutes; medical mail order concerns; male specialists; mineral waters; obesity cures, etc. This information was obtained from reports of the American Medical Association Bureau of Investigation and is kept up-to-date by subsequent reports.

While the Bureau is directed largely against quackery, information on all products accepted by the American Medical Association is on file. Quite full information on all physicians in the United States and American physicians in foreign countries is available including year of birth, college, year of graduation, year of license, home and office addresses, whether such physicians have national licenses, practice a specialty, are affiliated with state or special societies, hold a military title or professorship in a medical school.

Information on all accredited hospitals and sanitariums is available, such as location, date of establishment, type of patient treated, capacity, ownership and medical director and whether approved for internship and residencies. A listing of medical libraries, medical journals and medical colleges, both existing and extinct, is maintained.

To supplement information maintained in the office of our Association one hundred members were appointed by the President, Dr. E. Lee Miller, Kansas City, as advisers who will be consulted in answering inquiries not of a routine nature or which deal with a special field of medicine or medical problem. The vast majority of inquiries can be answered from the material maintained in our office; other matters will require consultation with an adviser or may even require a consensus of advisers. In New York City where such a bureau has been in operation for seven years with approximately 10,000 inquiries handled, experience has shown group conferences of advisers are rarely necessary.

Newspapers throughout the state have recently been contacted and offered the services of the bureau and many have responded either with requests for information or expressing interest and intention of using the bureau when needed.

As illustrating the service which has been rendered for some time and the type of service the Bureau will attempt to increase, are inquiries from several metropolitan newspapers on the advisability of carrying the advertisements of certain products; the Citizens' Relief Administration in St. Louis obtains information on all physicians before adding them to their staff; many insurance companies obtain routine information on physicians; newcomers in the city consult the list of general practitioners and specialists in selecting their physicians; physicians and the laymen obtain information on pharmaceutical products; building managers ask the professional standing of proposed tenants.

It is the belief and hope of the Association that this Bureau will fill a definite need of the

public and the medical profession throughout the state.

SOUTHERN MEDICAL ASSOCIATION

The twenty-ninth annual session of the Southern Medical Association which was held in St. Louis, November 19 to 22, was one of the most successful meetings the organization has held according to the Southern visitors. It was the first time Missouri has had the opportunity of entertaining the Association although Missouri has been one of its components for twenty-six years. Missouri has had few members in the organization in comparison with other states but a large number of physicians in Missouri and especially in St. Louis took advantage of the privilege to attend as guests and many became members of the Association. The president, Dr. H. Marshall Taylor, Jacksonville, Florida, presided at the St. Louis session.

The registration at the session was the largest the Association has ever had, totalling 4296. Of this number 2705 were physicians, 659 wives and daughters, 657 medical students and 275 technical exhibitors. Two hundred forty out-state Missouri physicians and over 700 from St. Louis attended the sessions. The largest previous registration was at the Dallas meeting in 1925 when 2042 physicians registered.

There were 488 papers read in the various section meetings. The first day was "St. Louis Day" and 110 papers were presented by St. Louis physicians at five concurrent clinical sessions.

Seventy-two scientific exhibits and eighty-three technical exhibits filled most of the space of the large exhibit hall in the Municipal Auditorium. The scientific exhibits receiving awards or honorable mention were Dr. Ernest W. Goodpasture, Nashville, on antismallpox vaccine from chick embryos, and experimental mumps in monkeys; Dr. Joseph W. Larimore, St. Louis, on gastro-enterology; Dr. George Herrmann, Galveston, and Dr. Louis G. Hermann, Cincinnati, on obliterative arterial diseases of the extremities; Dr. E. A. Doisy and Dr. Sidney A. Thayer, St. Louis, on preparation and properties of theelin; Dr. Ernest Sachs and Dr. Leonard R. Furlow, St. Louis, on brain and spinal cord tumors from patients now free of symptoms; Dr. Beverley R. Tucker, Richmond, on reinvestigation of pellagra, and Dr. Daniel C. Elkin, Atlanta, on aneurysms.

All sessions were held in the Municipal Auditorium with the exception of an open meeting on the evening of the first day at the Jefferson Hotel when the following program was presented: "Pain in the Abdomen," Dr. Alton

Ochsner, New Orleans; "Reducing Fads Versus Simple Rational Reduction Diets," Dr. Seale Harris, Birmingham; "The Romance of Immunization," Dr. A. T. McCormack, Louisville, and "Society's Debt to the Doctor," Rev. Alphonse M. Schwitalla, S. J., Dean, School of Medicine of the St. Louis University.

Meeting concurrently with the Southern Medical Association were the American Public Health Association (Southern Branch), National Malaria Committee, American Society of Tropical Medicine, Society for Experimental Biology and Medicine, American Academy of Pediatrics, Southern Association of Anesthetists, Mid-Western Association of Anesthetists and the International Anesthesia Research Society.

On the afternoon of November 21 physicians went to the grave of Dr. William Beaumont in Bellefontaine Cemetery and placed wreaths in honor of the one hundred fiftieth anniversary of Beaumont's birth. Dr. Beaumont, noted for his work on the functions of the stomach and the physiology of the digestive tract, died at St. Louis eighty-two years ago.

Officers elected for next year are: President, Dr. Fred M. Hodges, Richmond, Virginia; first vice president, Dr. Quitman U. Newell, St. Louis; second vice president, Dr. Joseph E. Knighton, Shreveport, Louisiana; secretary, Mr. C. P. Loranz, Birmingham. The following St. Louis members were elected officers of sections: Dr. J. B. Brown, vice chairman, section on surgery; Dr. Grayson Carroll, vice-chairman, section on urology; Dr. M. F. Arbuckle, chairman, section on ophthalmology and otolaryngology; Dr. Ross A. Woolsey, chairman, section on railway surgery; Dr. O. P. J. Falk, vice chairman, section on medicine.

The Association will meet next November in Baltimore, Maryland.

GOVERNMENT ESTABLISHES NARCOTIC FARM

The first United States Narcotic Farm was formally dedicated and opened last spring at Lexington, Kentucky. During four days in which it was open for inspection 17,241 persons visited the institution.

The farm will care for addict prisoners from the Federal prison system and will accept cases placed on probation by courts if such probationers voluntarily submit themselves to confinement and treatment. A limited number of persons voluntarily seeking treatment will be accepted. The capacity is 1000 persons. The institution is for men only although it is contemplated that facilities will be developed for

women addicts in the near future as an adjunct to the facilities already provided for men.

Preliminary plans for an institution at Fort Worth, Texas, have been approved and it is anticipated that the contract for the buildings will be accepted soon. The institution at Lexington is designed principally for care of the more intractable type of person, largely the prisoner group, and the custodial features have been emphasized. The institution at Fort Worth will supplement the one at Lexington and will be of the cottage type and less restrictive.

The background of these narcotic farms is far more than the mere domiciliary care of drug addicts. The institutions must, because of the service they are expected to perform, be medical and research centers. Imprisonment has proved insufficient as repeated prison sentences have been imposed more often upon drug addicts than on any other type of adult prisoner.

The opening of the institution at Lexington marks a change in the policy of the United States Government toward the drug problem. No person will be eligible for treatment unless he is an addict as defined by the law which authorizes the narcotic farms. It shows that the Government feels that restrictive laws governing commerce in narcotics are not the only measures to be applied as a possible solution of the medico-social problem of drug addiction. The isolation and segregation of drug addicts with the object of medical treatment appears desirable and necessary for their presence and contact with others in American communities are a potential danger and a causative factor in the production of further addiction, it being estimated that more than half of the present day addiction is attributable to contact with other addicts.

The narcotic farm will have a direct bearing on policies of law enforcement and protection of community life; on penal and correctional procedure; on safeguarding the use of narcotic drugs in medical practice; on research in drug addiction and on the individuals who are rehabilitated by the farm.

MISSOURI ACADEMY OF SCIENCE

The second annual meeting of the Missouri Academy of Science was held in Kansas City October 24 to 26. The continuous and healthy growth of the Academy has been gratifying; more than 450 were registered at the Kansas City session.

The medical section of the Academy held its meeting at the University of Kansas City Biology Building on the afternoon of October 25. This section had one of the largest attendances

although there was much interest manifested by scientists in other fields.

Dr. Dudley S. Conley, Columbia, Dean of the School of Medicine of the University of Missouri, was chairman of the medical section and presided at the meeting of that section. The program was "What Maternal Welfare Hopes to Accomplish in Missouri," Dr. Buford G. Hamilton, Kansas City; "The Management of the Choreic Child," Dr. E. Sanborn Smith, Kirksville; "Internal Administration of Radium," Prof. Herman Schlundt, Columbia; "The Minutiae of Thyroid Signs and Symptoms," Dr. F. T. H'Doubler, Springfield; "The Pathological Physiology of the Heart," a motion picture, by Dr. Robert M. Moore, Columbia.

Dr. F. T. H'Doubler, Springfield, was elected chairman of the medical section succeeding Dr. Dudley S. Conley, Columbia.

On Saturday morning, October 26, a joint meeting of the medical section was held with the sections on agriculture, biology and entomology.

ST. LOUIS HEALTH DIVISION TO GIVE INSTRUCTION COURSES

The Health Division of the Department of Public Welfare of St. Louis has announced its fourth annual clinical conference on tuberculosis to be held December 5, 9 and 12. In addition, courses will be presented this year in maternal hygiene and in child hygiene. The three courses will be given December 3 to 18. The courses will be given under the auspices of the Health Division with the cooperation of the Hospital Division. All physicians of St. Louis and interns are eligible to enroll for the courses.

The course in child hygiene will consist of a symposium on "The Dietetic and Prophylactic Management of the Infant" given at the Isolation Hospital, 9:30 to 11:30 a. m., December 3; a symposium on "Practical Hints to the General Practitioner in the Management of Infants During Health and Disease" at the Isolation Hospital at the same hours on December 6, and on December 10 practical demonstrations on child hygiene will be given at all health centers.

A symposium on "The Diagnosis and Treatment of the Complications of Pregnancy" will be presented by consultants in maternal hygiene of the St. Louis Health Division at the Isolation Hospital, 9:30 to 11:30 a. m., December 4; on December 11 a symposium on "Practical Hints to the General Practitioner in the Management of Pregnancy and Its Complications" will be given at the Isolation Hospital and practical

demonstrations in maternal hygiene will be given in all the health centers on December 18.

The course on tuberculosis will be divided into three morning sessions the first on December 5 at the Isolation Hospital dealing with the diagnosis of tuberculosis with short discussions followed by demonstrations. A symposium on "Treatment" with demonstrations will be given December 12 at the Isolation Hospital, 9:30 to 11:30 a. m., and on December 16 a demonstration clinic will be presented at Koch Hospital. On December 9 demonstrations in various phases of tuberculosis work will be given in the municipal health centers.

The course in tuberculosis has become an annual activity of the Health Division and each year more physicians take advantage of the concentrated and practical instruction in this field. It is hoped by the Division that the work in maternal and child hygiene will become as valuable to physicians as the tuberculosis course has been.

GOOD HEALTH RECORD FOR 1935 INDICATED

A low mortality for 1935 is indicated by statistics prepared on the insured wage earning population of the United States by one of the large life insurance companies. Six of the first eight months of the year showed lower death rates than in the same months in 1934, the year having the best health record to date. The accumulative death rate of the eight months among many millions of industrial policy holders was approximately 2 per cent lower than for the same period in 1934.

Deaths from six diseases which are important causes of death established a low mortality record in 1934 but in 1935 these diseases were responsible for even fewer deaths than in 1934. These six diseases are typhoid fever, diphtheria, tuberculosis, diarrheal diseases, chronic nephritis and puerperal conditions. The death rate from chronic nephritis declined 8.6 per cent in the first eight months.

The diseases showing increased prevalence over July were diphtheria, influenza, poliomyelitis and typhoid fever; those showing declines were measles, scarlet fever and smallpox. August, 1935, showed an increase over August, 1934, of diphtheria, influenza, poliomyelitis and smallpox, and a decline in measles, scarlet fever and typhoid fever.

The month of August was outstandingly favorable having a death rate of only 7.4 per 1000 insured lives. The rate in the general population of several of the larger cities was 9.8 per 1000 in August, 1935, as compared with 10.4 in July, 1935, and 9.7 in August, 1934.

NEWS NOTES

Dr. E. E. Glenn, Springfield, conducted a chest clinic at Lebanon on November 4 under the auspices of the Laclede County Tuberculosis Association and the Laclede County Medical Society.

Dr. Sam Snider, Kansas City, examined thirty-three patients at a tuberculosis clinic at Clinton on October 23.

Dr. John R. Caulk, St. Louis, was a guest speaker at the Oklahoma City Clinical Conference which was held in Oklahoma City, Oklahoma, November 5.

Dr. Emsley T. Johnson, Kansas City, was the guest of the Colorado State Medical Society at Estes Park, Colorado, September 5 to 7 and read a paper on "Liver Damage Due to Synthetic Drugs."

Dr. Charles Wesley Burrill, Kansas City, celebrated his ninetieth birthday on October 20 at his home. Dr. Burrill is an honor member of the Jackson County Medical Society, first becoming a member in 1883.

The annual meeting of the St. Louis Society for the Blind was held November 18 at the Second Presbyterian Church, St. Louis. Dr. Edward Jackson, Denver, Colorado, presented an address on "The Importance of Prevention of Blindness."

William Griffin, St. Louis, was found guilty of practicing medicine without a license and sentenced to ninety days in the workhouse. Griffin, a Negro, termed himself an "herb doctor" and the complaint was made by a Negro woman because he treated her small daughter with salves and medicine for a stomach ailment.

The Bothwell Memorial Hospital, Sedalia, was accorded provisional approval by the American College of Surgeons on October 14. The hospital is open to all members in good standing of the Pettis County Medical Society. Officers of the staff are Dr. Cord C. Bohling, president and chief of staff; Dr. Charles B. Trader, vice president and assistant chief of staff; Dr. Charles D. Osborne, secretary, and Drs. A. E. Monroe, W. T. Bishop and Frank D. Long, members of the executive committee.

The Lincoln County Medical Society will be hosts at a meeting of the 8th Councilor District

at Troy on December 5 under the auspices of the Cancer Committee of the State Association. Dr. Martin F. Engman, Jr., and Dr. Charles F. Sherwin, St. Louis, will discuss "Facts About Cancer" at an open meeting. At a scientific meeting Dr. Engman will speak on "Differential Diagnosis and Treatment of Diseases of the Skin, Especially Cancer," and Dr. Sherwin will talk on "Diagnosis and Treatment of Cancer of the Mouth."

The Cancer Committee of the Missouri State Medical Association sponsored a cancer meeting with the Pettis County Medical Society as hosts at Sedalia, November 14. A clinic was conducted at the Bothwell Hospital in the morning and a public meeting was held in the afternoon with the following program: "Causes of Cancer," Dr. Ferdinand C. Helwig, Kansas City; "Prevention of Cancer of the Mouth," Dr. E. Kip Robinson, Kansas City, and "Cancer Control," Dr. David S. Dann, Kansas City. In the evening a scientific meeting was held and Dr. Helwig spoke on "Reaction of Tumors to Radiation"; Dr. Robinson spoke on "Treatment of Metastatic Glands in the Neck," and Dr. Dann on "Management of Cancer of the Lip." All members of the 17th District were invited to the meeting.

The United States Civil Service Commission has announced an open competitive examination for principal medical officer (Bacillin Calmette-Guerin). Applications must be on file with the United States Civil Service Commission, Washington, D. C., not later than December 9. Applicants must have had not less than five years' experience in the vaccination of newborn infants with bacillin Calmette-Guerin vaccine according to the method of Calmette and must have had not less than three years' experience in city, state or Federal public health laboratories with work in tuberculosis.

The United States Civil Service Commission has also announced open competitive examinations for children's bureau positions. Applications must be on file not later than December 9. Applicants must have had certain specified experience. Full information may be obtained on both examinations from the Secretary of the United States Civil Service Board of Examiners at the post office or customhouse in any city which has a post office of the first or the second class, or from the United States Civil Service Commission, Washington, D. C.

The Frisco System Medical Association held its thirty-fourth annual meeting in Joplin October 28 and 29. The following Missouri mem-

bers appeared on the program: Dr. LeRoy W. Baxter, Joplin; Dr. J. O. Glenn, St. Louis; Dr. E. M. Fessenden, Dr. Murray Stone and Dr. W. C. Cheek, Springfield, and Dr. Claude J. Hunt, Kansas City. Officers who will serve for the ensuing year are: President, Dr. Robert Vinyard, Springfield, Missouri; vice presidents, Dr. B. S. Lester, Birmingham, Alabama; Dr. W. R. Brooksher, Ft. Smith, Arkansas; Dr. A. E. Mock, Pensacola, Florida; Dr. J. Z. Hoffman, Wichita, Kansas; Dr. Ped L. Fite, Columbus, Mississippi; Dr. Paul F. Cole, Springfield, Missouri; Dr. H. T. Ballantine, Muskogee, Oklahoma; Dr. W. B. Malone, Memphis, Tennessee, and Dr. E. H. Cary, Dallas, Texas; secretary, Dr. E. M. Fessenden, Springfield, Missouri. The executive committee was reelected as follows: Dr. R. A. Woolsey, St. Louis, chairman; Dr. E. M. Fessenden, Springfield, Missouri; Dr. J. R. McVay, Kansas City, Missouri, and Dr. E. S. Edgerton, Wichita, Kansas. The 1936 session will be held in Springfield, Missouri.

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Nonofficial Remedies:

Calco Chemical Co., Inc.

Acriflavine Neutral—Calco

Tablets Acriflavine Neutral—Calco, ½ grain (uncoated)

Scarlet Red Medicinal Biebrich—Calco

Lederle Laboratories, Inc.

Concentrated Solution Liver Extract Parenteral—Lederle, 1 cc.

Diphtheria Antitoxin, Globulin—Lederle—Modified

Tetanus Antitoxin, Globulin—Lederle—Modified

Rabies Vaccine—Lederle (Semple Method), 2 cc. vials

Sharp & Dohme

Apricot Allergenic Extract—Mulford; Artichoke Allergenic Extract—Mulford; Bass (Sea) Allergenic Extract—Mulford; Bean (Kidney) Allergenic Extract—Mulford; Bean (Soy) Allergenic Extract—Mulford; Blackberry Allergenic Extract—Mulford; Bluefish Allergenic Extract—Mulford; Brazilnut Allergenic Extract—Mulford; Brussel Sprouts Allergenic Extract—Mulford; Carp Allergenic Extract—Mulford; Chestnut Allergenic Extract—Mulford; Cinnamon Allergenic Extract—Mulford; Clove Allergenic Extract—Mulford; Cranberry Allergenic Extract—Mulford; Egg (whole) Allergenic Extract—Mulford; Fig Allergenic Extract—

Mulford; Hickory Nut Allergenic Extract—Mulford; Honey Dew Allergenic Extract—Mulford; Huckleberry Allergenic Extract—Mulford; Lactalbumen Allergenic Extract—Mulford; Lemon Allergenic Extract—Mulford; Lentil Allergenic Extract—Mulford; Okra Allergenic Extract—Mulford; Olive Allergenic Extract—Mulford; Pea (Black-eyed) Allergenic Extract—Mulford; Pepper (Red) Allergenic Extract—Mulford; Pepper (Sweet) Allergenic Extract—Mulford; Perch Allergenic Extract—Mulford; Plum Allergenic Extract—Mulford; Pumpkin Allergenic Extract—Mulford; Radish Allergenic Extract—Mulford; Raspberry Allergenic Extract—Mulford; Rhubarb Allergenic Extract—Mulford; Scallop Allergenic Extract—Mulford; Shad Allergenic Extract—Mulford; Shad Roe Allergenic Extract—Mulford; Smelt Allergenic Extract—Mulford; Swiss Chard Allergenic Extract—Mulford; Trout (Sea) Allergenic Extract—Mulford; Turkey Allergenic Extract—Mulford; Vanilla Allergenic Extract—Mulford; Watermelon Allergenic Extract—Mulford; Yeast Allergenic Extract—Mulford; Camel Hair Allergenic Extract—Mulford; Goat Hair Allergenic Extract—Mulford; Hog Hair Allergenic Extract—Mulford; Cottonseed Allergenic Extract—Mulford; Dust, House Allergenic Extract—Mulford; Glue (Fish) Allergenic Extract—Mulford; Pyrethrum Allergenic Extract—Mulford; Silk Allergenic Extract—Mulford; Tobacco Allergenic Extract—Mulford.

E. R. Squibb & Sons

Ipral Sodium Tablets, $\frac{3}{4}$ grains

Ipral Sodium Tablets, 2 grains

White Laboratories, Inc.

White's Cod Liver Oil Concentrate (Liquid),
5 cc. vials

Winthrop Chemical Co., Inc.

Ampules Novocain Solution 2%, 3 cc.

Ampules Novocain Solution 10%, 2 cc.

Sterile Ampules Novocain Crystals for Spinal
Anesthesia, 300 mg.

Sterile Ampules Novocain Crystals for Local
Anesthesia, 500 mg.

The following products have been accepted for inclusion in the List of Articles and Brands Accepted by the Council But Not Described in N. N. R. (New and Nonofficial Remedies, 1935, p. 445):

Arlington Chemical Co.

Arlco Proteins (for Diagnosis)

Eli Lilly & Co.

Lubricating Jelly—Lilly

OBITUARY

HERBERT A. BREYFOGLE, M.D.

Dr. Herbert A. Breyfogle was born in Delaware, Ohio, March 24, 1878, a son of Henry S. and Mary (Littick) Breyfogle, both natives of Ohio. His parents moved to Kansas City, Missouri, in 1859, making the trip overland in a "prairie schooner" and settling at what is now Delaware and Main streets. The young wife was homesick and a year later the Breyfogles returned to Ohio, continuing to live the remainder of their lives in Delaware. The father, however, had seen enough of the West to be convinced of its future and later advised his son to locate here.

Dr. Breyfogle's preliminary education was completed in the public schools of Delaware. He then entered Ohio Wesleyan University and received a Bachelor of Arts degree in 1902. He took an active interest in various college activities, especially football. Fielding H. Yost was the coach of the team his senior year. Dr. Breyfogle, playing end, made a 72-yard run for a touchdown to beat Ohio State University, the first and last victory for Ohio Wesleyan over the State University. From Ohio Wesleyan, Dr. Breyfogle continued his education at the University of Chicago, receiving the degrees of Bachelor of Science and Doctor of Medicine in 1905. He then went to the Saint Joseph Hospital in Denver, Colorado, for a year of internship.

In 1907 Dr. Breyfogle returned to Kansas City and opened his office at 31st Street and Indiana Avenue. This intersection was the end of the street car lines. The section to the west and north were not very well built up and to the south and east were pastures and woods with only an occasional house. Through these fields, often muddy, day or night, he trudged. His business was his pleasure and as the community gradually built up and sidewalks, paved streets and electric lights made the going easier, his practice expanded. He was always available and his standards of medicine were high.

In 1917 he opened a downtown office at the same time continuing the one at 31st and Indiana. His working hours were from 7 a. m. to midnight. However, in 1928, he combined the two when he moved into the Medical Arts Building.

During the war he served with the rank of Captain in the Medical Corps. He served as a member of the State Board of Health from 1924 to 1928. He was a member of Phi Gamma Delta, Alpha Kappa Kappa, Alpha Omega Alpha fraternities, Ivanhoe Masonic bodies, Ararat Shrine, the Sojourner's Club and the University Club.

On October 20, 1908, Dr. Breyfogle married Miss Clara Lowe, to which union one child was born, Herbert Stewart Breyfogle, now a junior medical student at the University of Chicago. Mrs. Breyfogle passed away in 1927. In October, 1929, he married Mrs. Evelyn Sandow, who survives him.

Dr. Breyfogle, "Brey" to his patients and his friends, found his joys and pleasures in the practice of medicine. He was a member of the Jackson County Medical Society, Missouri State Medical Association and the American Medical Association. He was a member of St. Luke's Hospital staff of which he was a former president.

He was a "family doctor." He had a keen perception, a wonderful memory and an intuitive medical sense seldom found. His large practice gave him a vast experience and to all of this he brought a strait-laced code of ethics and honor. Always cheerful, kind in manner, courteous to all, he was loved and respected

by patients and colleagues. During the stress of the recent years his comments on national affairs helped enliven many an argument in St. Luke's Doctors' Lounge.

Dr. Breyfogle wished to go with his "boots on." He refused to ease up, although he was cognizant of the strain that twenty-eight years of the hardest sort of practice had placed on him. In his passing we have lost a loyal friend and colleague, medicine has lost a practitioner a type of which there are too few, and his patients have lost a friendly counselor and doctor for whom they must have an aching void.—H. L. M. in the Jackson County Medical Journal.

JOHN B. REYNOLDS, M.D.

Dr. John Buchanan Reynolds was born at Agency, Missouri, June 22, 1858, and died June 25, 1935, at St. Joseph.

Dr. Reynolds received his common school education at Agency and was graduated from the Missouri Medical College in St. Louis in 1882.

He married Miss Caroline Woodson, sister of the late Dr. C. R. Woodson, in 1883. Three children were born of the marriage, a daughter and two sons, Mary, John Buchanan and S. Woodson. The two sons took up medicine and are now practicing in Oklahoma. Caroline Woodson Reynolds died March 2, 1900. Two years later Dr. Reynolds married Miss Lulu Moore who survives him.

Dr. Reynolds started to practice medicine at Camden Point, Missouri, in 1882. In 1883 he moved to St. Joseph where he continued to practice until 1933 when he retired.

He occupied the chair of materia medica and therapeutics and clinical medicine in St. Joseph Medical College. He took a postgraduate course in New York.

Dr. Reynolds was a member of the First Christian Church and for many years occupied the position of elder. He was a faithful friend and an honest upright Christian gentleman. Dr. Reynolds was an ardent supporter of his profession.

The Buchanan County Medical Society and the profession in Missouri deeply regret the death of one of its esteemed and respected members.

CHARLES GEIGER, M. D.
HARRY S. CONRAD, M. D.
CHARLES H. WERNER, M.D.

ELLIOTT KNIGHT DIXON, M.D.

Dr. Elliott K. Dixon, St. Louis, was born October 25, 1890, the son of Dr. Charles H. Dixon, a well known physician who spent his life practicing in St. Louis. Dr. Elliott Dixon was educated in the grade schools in St. Louis; graduated from Smith Academy in 1908; spent one year at Cornell University and completed his college and medical education at Washington University, graduating from the Medical School in 1915. Dr. Dixon spent three years as intern and assistant resident on the surgical service at Barnes Hospital. Following the completion of his hospital training he was associated with Dr. Paul Y. Tupper for a number of years and practiced surgery in St. Louis until his death on June 25, 1935.

Dr. Dixon was a capable surgeon, of fine sensibility and careful judgment, and his work during his productive years was a credit to his profession. His death at the early age of 45 was a tragic loss to his friends and his professional associates.

Dr. Dixon was married June 25, 1917, to Miss Josephine Caradine who, with two daughters, survives him. To all who knew him and to his family we express our deepest sympathy.—A. B. D. in the *Bulletin* of the St. Louis Medical Society.

FRED E. VAN EMAN, M.D.

Dr. Fred E. Van Eman brought into the laboratory of life an unusual blend of heredity. In this inheritance the qualities of abounding energy and keen mentality were combined with a vivid imagination and clear sense of practical values. These qualities received the stimulus of an environment of association with his father, Dr. John H. Van Eman, a practicing physician in Jackson County from 1877 when the father moved there from Leavenworth County, Kansas, where he practiced from the time of his graduation from the Medical College of Ohio at Cincinnati, in 1868, until his death in 1902. The father started the Nurses' Training School at the old St. Joseph Hospital when it was down on Seventh Street and in 1881 he was made clinical professor of medicine in Kansas City Medical College. At the time of the father's death he was professor of diseases of women and president of the board of directors of the Kansas City District Medical Society. (This Society was the forerunner of the present Jackson County Medical Society.)

Dr. Fred E. Van Eman's life, secondly, was moulded by an unusual blend of environment. In his membership on the staffs of the following hospitals at various times, Wesley, Christian Church, Kansas City General, St. Luke's and his last hospital home at Trinity Lutheran; his membership in the American Medical Association, the Missouri State Medical Association, the Jackson County Medical Society, the Kansas City Gynecological and Obstetrical Society, the Kansas City Southwestern Clinical Society and lastly the stimulus of an environment of hardship in a very active obstetrical practice all united with the solvent of sixty-five years of life combine to make the chemistry of his character.

Dr. Fred E. Van Eman was born in Leavenworth County, Kansas, on August 20, 1870. His family moved to Kansas City in 1877 and lived on the corner of 11th and Grand where Emery Bird's store now stands.

He attended and graduated from Humboldt grade school in 1886 and from Central High School in 1890, and from the Kansas City Medical College in 1897. This same year he was licensed to practice in both the states of Kansas and Missouri.

In 1902 he was married to Edith Pullman and in 1904 Pauline was born.

Dr. Van Eman was a captain in the Medical Reserve Corps of the United States Army and was stationed in Camp McArthur at Waco, Texas, during the years of 1918 and 1919.

Immediately upon his return to private practice from the army he served as president of the Jackson County Medical Society during 1919.

Dr. Van Eman contributed to the medical literature of his time and to his specialty, obstetrics. His first medical monograph appeared in 1904 and the last in 1932. He generously gave the medical books of his father to the Jackson County Medical Library to form, with the books of other doctors, the nucleus of the present extensive medical library.

Dr. Fred Van Eman was a man with abounding energy and courage and rare judgment among his colleagues; a beloved physician to the many mothers he aided through the fertile valley of bringing new lives to endow Jackson County, Missouri; a kindly man that these children looked to as their fairy godfather who was always interested in their advancement; a husband and father who held his home life as sacred as his fidelity to the Hippocratic oath. These all combined to make him one of our great and beloved physicians.—D. W. in the Jackson County Medical Journal.

SOCIETY PROCEEDINGS

COUNTY SOCIETY HONOR ROLL FOR 1935

(UNDER THIS HEAD WE LIST SOCIETIES WHICH
HAVE PAID DUES FOR ALL THEIR MEMBERS)

HONOR ROLL

Ste. Genevieve County Medical Society,
December 12, 1934.
Chariton County Medical Society, Janu-
ary 3, 1935.
Perry County Medical Society, January 4,
1935.
Moniteau County Medical Society, Janu-
ary 10, 1935.
Camden County Medical Society, Febru-
ary 26, 1935.
Schuyler County Medical Society, March
18, 1935.
Lewis County Medical Society, April 2,
1935.
Holt County Medical Society, April 18,
1935.
Lincoln County Medical Society, April 18,
1935.
Pike County Medical Society, May 15,
1935.
Saline County Medical Society, May 21,
1935.
Benton County Medical Society, July 9,
1935.
Knox County Medical Society, November
8, 1935.

BUCHANAN COUNTY MEDICAL SOCIETY

The October meeting of the Buchanan County Medi-
cal Society was called to order at the Missouri Metho-
dist Hospital by the president, Dr. E. F. Cook, October
3 with thirty members present.

The report of the necrology committee on the death
of Dr. J. B. Reynolds was adopted.

Payment for the examination of school children for
gymnasium work was brought up by Dr. C. S. Branson,
and Dr. A. H. Muench suggested that the matter
should be put up to the school board. Dr. H. W. Carle
said that the original idea was for the children to go to
their family physician and pay him. He assured the
Society that no one had authority to instruct a child
that the service was free and that he would see that
such instructions were stopped. The motion was made
by Dr. J. M. Allaman, seconded by Dr. J. T. Stamey,
and passed that the members charge a fee of \$1 for the
examination.

Dr. W. T. Stacy reported that because of the antici-
pation of further changes in the by-laws no final action
had been taken. It was moved by Dr. W. T. Elam,
seconded by Dr. J. M. Allaman and passed that the
revision of the by-laws and the consideration of a fee
schedule be resubmitted to the committee.

A letter from James E. Maxwell, transient director,
208 East Capitol, Jefferson City, relative payment of
medical services was read and referred to the appro-
priate committee.

Dr. E. E. Wadlow discussed "Intra-Uterine Death
Caused by Umbilical Abnormalities." The paper was
ably presented and well received.

EARL WHITSELL, M.D., Secretary.

CLAY COUNTY MEDICAL SOCIETY

The Clay County Medical Society convened with the
Auxiliary for a dinner meeting October 31. Meetings
of the Auxiliary and Society followed the dinner.

The president, Dr. Harry Staley, North Kansas City,
presided at the meeting of the Society. Those present
were Drs. Wm. H. Goodson, Burton Maltby and John
H. Rothwell, Liberty; Harry Staley, North Kansas
City; A. Spelman, Smithville; N. Schuhmacher and
John W. Epler, Kearney; J. Edward Baird, Hiram J.
Clark, Young D. Craven, Joseph Dauksys, James A.
Howell, Samuel R. McCracken, John E. Musgrave,
John F. Grace, E. B. Robichaux, E. C. Robichaux,
Excelsior Springs; George H. Hoxie and E. R. De-
Weese, Kansas City.

Dr. George H. Hoxie, Kansas City, spoke on "Clin-
ical Aspects of Early Tuberculosis." Dr. E. R. De-
Weese, Kansas City, discussed "Roentgenological
Aspects of Early Tuberculosis." Radiograms demon-
strated the addresses. Films were also shown by Dr.
Wm. H. Goodson, Liberty; E. C. Robichaux and Jo-
seph Dauksys, Excelsior Springs.

The next meeting will be held in Liberty, December
19, at which time election of officers will be held.

E. B. ROBICHAUX, M. D., Secretary.

JASPER COUNTY MEDICAL SOCIETY

The Jasper County Medical Society met October 15
with twenty-two members present. The president, Dr.
W. S. Loveland, Joplin, presided.

A letter and card of appreciation from the family of
Dr. A. B. Clark was read.

A letter from Dr. E. T. McGaugh, State Health
Commissioner, was read stating that Leon Hurwitz
had filed for reinstatement by the state medical board
and desired the Jasper County Medical Society to take
action and let the Board know by October 23, 1935.
Dr. O. T. Blanke, Joplin, moved that the secretary be
instructed to write a letter to the State Board of Health
endorsing the letter written previously by Dr. Love-
land stating that the Jasper County Medical Society
was unanimously opposed to reinstatement of Leon
Hurwitz.

Dr. Loveland announced that he had appointed the
following men to act as a committee to draw up plans
for the Medical Dental Credit Bureau: Dr. R. M.
James, Joplin, chairman; Dr. O. T. Blanke, Joplin;
Dr. O. B. Brite, dentist; Miss Yates, Freeman Hos-
pital, and Miss McGovern, St. John's Hospital.

Dr. R. M. James, Joplin, president of the Frisco Hos-
pital Association, invited the members of the Society to
attend the exhibits to be held in connection with the
meeting of the association in Joplin, October 28 and 29.

Dr. J. W. Barson, Joplin, reported on "Iron for Sec-
ondary Anemia" which he had heard presented at the
Southwest Clinical Society in Kansas City.

Dr. C. M. Balsey, Joplin, reported on a case of gan-
grenous appendix in which the appendix was found on
the left side.

Dr. W. M. Kinney, Joplin, reported a case of primary
bronchogenic carcinoma of the lung.

Dr. Loveland appointed Drs. L. C. Chenoweth, R. L.
Neff and Leroy Baxter, Joplin, as a committee to draw
up resolutions on the death of Dr. A. B. Clark.

Meeting of October 22

The Society met October 22 with eighteen members
present. Dr. W. S. Loveland, Joplin, presided.

A communication from the State Board of Health
was read stating that they had received the Society's
letter regarding Leon Hurwitz and would present it at
the next meeting to be held in Kansas City October 23.

Dr. L. B. Clinton, Carthage, reported on the activities of a Dr. Starks who was practicing in Jasper without a license, stating that he had been arrested and fined \$50; that it had been very difficult to get the county prosecutor in the district to take any action in the case and that the man had been going ahead with his work after paying the fine. Dr. J. E. Douglass, Webb City, stated that he thought the Society should take more interest in this type of thing and make known the ideas and bring pressure to bear upon the proper authorities so that the proper action would be taken against this man. Dr. O. T. Blanke, Joplin, suggested that the matter be placed in the hands of the board of censors with power to act and that they should write a letter to the Attorney General and also to the county prosecutor asking for more definite action. Upon motion by Dr. L. B. Clinton, seconded by Dr. B. E. DeTar, it was voted to place the matter in the hands of the board of censors with power to act.

The application of Dr. Mervin H. Black for membership in the Society was presented accompanied by a certificate of membership in the Colorado State Medical Society.

Dr. Paul W. Walker, Joplin, presented a paper on "Traumatic Injury of the Kidney."

Meeting of October 29

The Society was called to order October 29 with twelve members and one visitor present.

The transfer card of Dr. Virgil Jeans, member of the St. Louis Medical Society, was presented and turned over to the board of censors for action.

A letter from Mr. E. A. Elliott, superintendent of schools, Joplin, was read, thanking the members of the Jasper County Medical Society for their cooperation in examining the school children.

Dr. J. W. Barson, Joplin, read a paper on "Eclampsia" discussing in detail the treatment. A free discussion followed.

J. W. HARDY, M.D., Secretary.

WOMAN'S AUXILIARY

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

14th Annual Meeting, Kansas City, 1936

President, Mrs. Rogers N. Herbert, Nashville, Tennessee.

WOMAN'S AUXILIARY TO THE MISSOURI STATE MEDICAL ASSOCIATION

12th Annual Meeting, Columbia, 1936

President, Mrs. M. Pinson Neal, Columbia.

President-Elect, Mrs. W. C. G. Kirchner, St. Louis.

Adviser, Dr. J. F. Harrison, Mexico.

In the *News Letter* of the Woman's Auxiliary to the American Medical Association is found this suggestion: "Nor should the Woman's Auxiliary be overlooked as a source of aid to the debaters of the National University Extension Association Debate Committee in its debate for 1935-36 on the proposition: 'Resolved, That the several states should enact legislation providing for a system of complete medical service available to all citizens at public expense.' In every community where there is an organized auxiliary the women might well make it a part of their business this year to consult with the schools, offer their assistance and keep in touch with the debates."

Every Tuesday at 4 o'clock over the Blue Network the American Medical Association presents a radio program on "Medical Emergencies and How They Are Met." The topics may be found in *Hygeia*. The speakers are Dr. Morris Fishbein and Dr. W. W. Bauer.

Dr. Bauer says that the Auxiliary can do the following things to help the A. M. A. radio programs: (1) Listen to it so they will know what it is; (2) if the local NBC station does not take it ask them to do so; (3) write letters to the National Broadcasting Company if they like the programs and if they do not, write to the A. M. A. stating why; (4) tell their friends about it; (5) tell organizations about it, especially those to whom it may be useful such as Woman's Clubs, Child Study Groups, Parent-Teachers' Associations and schools.

The *News Letter* for October is devoted to the North Central States (of which Missouri is a member) and is edited by Mrs. James Blake of Minnesota who was formerly president of the National Auxiliary. In this issue the National President, Mrs. Rogers N. Herbert, gives much space to the broadcasts of the American Medical Association. She says: "Consult your medical journal for announcements of subjects and speakers on the A. M. A. broadcasts. Publicize these programs as widely as possible by announcing them in your various club activities and by telling the hour of the programs to all with whom you come in contact."

Mrs. Herbert L. Mantz, Kansas City, president of the Woman's Auxiliary of the Jackson County Medical Society, has been appointed general chairman of arrangements for the annual meeting of the Woman's Auxiliary to the American Medical Association which will be held in Kansas City May 11-15. Mrs. Rogers N. Herbert, president of the National Auxiliary, has been in Kansas City making plans for the convention. The Hotel Baltimore has been selected as headquarters for the Auxiliary.

Mrs. Helen Nelson Moore, wife of Dr. W. Rogers Moore, St. Joseph, died September 22. Besides her husband Mrs. Moore left an infant son. Mrs. Moore was active in the work of the Woman's Auxiliary to the Buchanan County Medical Society and was a member of the Woman's Association of the Methodist Hospital and the St. Joseph's Hospital Guild. Members of the Woman's Auxiliary to the Missouri State Medical Association extend their sincerest sympathy to the husband and son.

MISCELLANY

SOCIALIZED MEDICINE

CLARENCE S. CAPELL, M.D.

KANSAS CITY, MO.

A thorough study of socialized medicine has been made by the Bureau of Medical Economics of the American Medical Association. They have issued many books and pamphlets on the subject. These are the main sources of my information and the authority for the following statements.

Socialized medicine is a proposed method of distributing and equalizing the economic burden of sickness. It occurs as some form of compulsory health insurance. It is a change from a personal responsibility

From the Jackson County Medical Journal.

to a social responsibility. It was introduced into Germany by Bismarck in 1883 for political reasons. It was later started in England by Lloyd George also for political reasons. It has since appeared in different forms in France and other European countries. In none of these countries was it introduced by those most concerned; namely, the medical profession and the people themselves. There are those very influential in our government who advocate it and who believe that it will be instituted in America. So it behooves the medical profession to study it very carefully.

To a casual observer it would at first seem that socialized medicine could not help but be a splendid thing with its free and frequent medical examinations, chances for early diagnosis and almost unlimited treatment.

But let us examine the reports on some of the different phases of the condition.

Cost of Medical Care.—The subscribers, after they have paid in for some time and in response to the very human impulse "to get their money's worth," begin energetically to demand expensive things such as frequent roentgen ray examinations, the latest physical therapy treatment and the most highly advertised medicines.

The lay or political management with their constant checking of doctors and patients consider their work the most important and see to it that they are paid accordingly.

So socialized medicine has not reduced the cost of medical care.

The Medical Service.—Next, let us consider the effect of socialized medicine on the doctor. When a patient becomes a subscriber there are changes. He no longer has a free choice of physicians. That fine complex relationship between doctor and patient is destroyed. It has become depersonalized. Their relations are now mechanical. The doctor is expected to practice medicine on mechanical mass methods. He has to examine so many for trivial things or those who are merely attempting to get their money's worth that he becomes suspicious of all. Human beings are not machines. Physicians are not mechanics. The doctor has to give many merely a "look and a bottle." The result is that many serious cases are missed. The doctor must become slipshod. He loses his self-respect, initiative and scientific honor.

So socialized medicine is demoralizing to medical practice.

Morbidity.—Now let us consider the amount of sickness or morbidity. It is a surprising fact that health insurance with its frequent free medical examinations causes a neurosis which results in real sickness. There is also engendered a destruction of the "will to get well." And because it is free, there is a continual dosing, a harmful overmedication.

So among those insured there is a definite increase in sickness.

Mortality.—Vital statistics verify what one would expect from this recital. There is no decrease but a definite increase in the death rate among those insured in comparison to those uninsured.

Recapitulation.—Medical service declined and became inefficient, cost of medical care was not reduced. There was an increase in the amount of sickness and in the death rate. A rather severe indictment.

In conclusion I will say that doctors practicing as individuals are proud of the scientific advancement they have made. They are proud of the work they have done in the field of preventive medicine. They are proud of the charity work they have done and are willing to do. They are also proud of the idealistic spirit in which it was done. They have a code which was

given to them 2800 years ago by Hippocrates, a Greek doctor, which is a force among them today. In their organization they have and use means of punishing the flagrant wrongdoers.

Organized medicine does not intend any compromise with the idea of compulsory health insurance. In Los Angeles, Detroit and in Washington, D. C., on their own initiative, the doctors have instituted plans for a more systematic care of the underprivileged. In these plans there will be a close cooperation with the local charity organizations.

Finally America does not need state medicine. Without the intrusion of any outside influence the doctors have done much to alleviate suffering and have greatly extended the span of human life.

BOOK REVIEWS

CLINICAL LABORATORY METHODS AND DIAGNOSIS. By R. B. H. Gradwohl, M.D., Director of the Gradwohl Laboratories; Director of the Gradwohl School of Laboratory Technique; Director of Laboratories, St. Louis County Hospital; Chief of Staff and Pathologist to Christian Hospital; Lieutenant Commander, Medical Corps, Fleet, United States Naval Reserve. With 328 illustrations in the text and twenty-four color plates. St. Louis: The C. V. Mosby Company. 1935. Price \$8.50.

This book presents the field of clinical laboratory methods with unusual completeness. It describes not only the numerous tests with clear detail, but adds what is so necessary for student and practitioner, a penetrating discussion of each particular subject. At the same time these discussions are remarkably brief so that the reader might even suspect omissions, but careful analysis will reveal that the author has studiously considered the information that may be said to constitute fact and neglected nothing of this. On the other hand, the volume is entirely free from heavy discussion that is not immediately useful.

The book is highly suitable as a text, and of unusual value to advanced laboratory workers and to practitioners intent on making their opinions in this field more accurate.

R. A. K.

CLINICAL MANAGEMENT OF SYPHILIS. By Alvin Russell Harness, M.D., Chief of Congenital Luetic Clinic, New York Hospital. New York: The Macmillan Company. 1935. Price \$1.50.

I have read the small volume with interest. Lues and the other diseases of the venereal group are prevented today, as they have been for many years, by argyrol, calomel ointment and Tr. green soap. After discontinuing treatment many luetics who have been "Wassermann fast" become negative. If a nidus of infection persists it can be found in bone, viscera or the central nervous or cardiovascular systems. I agree with the author that the provocative Wassermann is of questionable value and I was impressed by his insistence on frequent urinary examinations for toxicities and blood pressure readings. He pleads for routine spinal fluid examinations and admonishes those who look upon spinal puncture with "fear and trembling." Chapter X offers a very complete list of the phenomena to be sought for in children suspected of having congenital lues. A definite diagnosis must be made before treatment is instituted. Diet, proper and adequate, with treatment, continuous and prolonged are the es-

entials of success. An outstanding rule should be "one year or more of treatment is necessary after all cases show a permanent negative of both blood and spinal fluid." Blood tests in pregnant women should be as routine as birth certificates.

Summary. All lesions on the genitalia and skin must be thoroughly studied. Luetics do much better if they are not exposed to the direct rays of the midday sun. Trauma of all kinds must be guarded against as these sites offer new foci for development of the tr. pallida. The cost of treatment should be discussed with each patient. We must render continuous and prolonged treatment in combating lues, thus preventing the sad and embarrassing neurological sequelae.

The volume is small in size but rich in information. It should be in every medical library where it can be thoroughly digested by physicians and students in medicine.
L. A. M.

ELECTROTHERAPY AND LIGHT THERAPY. By Richard Kovacs, M.D., Clinical Professor and Director of Physical Therapy, Polyclinic Medical School and Hospital, New York, etc. Second edition, thoroughly revised. Illustrated with 263 engravings and a color plate. Philadelphia: Lea & Febiger. 1935. Price \$7.50.

This volume should appeal to those physicians who favor electric and light therapy. It is by far the best exposition of the subject published in the English language, if for no other reason than because of its completeness, thoroughness and freedom from overstatement.

The author fully discusses the physics of light and electricity and the theory of their application in medicine. He warns of the dangers and contraindications and finally adds a complete glossary of terms.

It is an admirable textbook for the student and for the doctor who is more or less familiar with the subject matter. That it is up-to-date is attested by the fact that the author has included some of the more recent additions to this field of medicine; namely, iontophoresis, ionization and the much discussed short-wave diathermy. A special word of commendation may be given the author for his chapter on electrical diagnosis. To my knowledge nothing so lucid and complete has hitherto appeared on this topic. The volume is exceedingly readable and easily understandable by those familiar with this form of therapy. One regrets, however, that the author deemed it necessary to use eighteen precious pages to expound the virtues (?) of the static current. Perhaps he did so purely for the sake of historic completeness.
F. H. E.

THE PRINCIPLES AND PRACTICE OF UROLOGY. By Frank Hinman, A.B., Leland Stanford Junior University, M.D., Johns Hopkins Medical School, Clinical Professor of Urology at the University of California Medical School. With 513 illustrations and forty-eight tables. Philadelphia and London: W. B. Saunders Company. 1935. Price \$10.00.

This textbook is ideal for the medical student and the general practitioner. It is not intended to be an exhaustive summary of current literature and research problems or an analytical guide to the thoroughly trained urologist.

The book does not go deeply into the therapeutic side of urology, but begins as a textbook first preparing for the student or the practitioner an understand-

ing basis or foundation by briefly leading him through the comparative anatomy of the genito-urinary tract, the development of the urogenital organs, carefully explaining the normal structure and function of each organ.

This first section of the book is quite detailed, and in spite of it being rather technical it is so well set down, that it is easily understood if carefully read. I think this first section is the most important in the whole book because the great amount of material that follows cannot be appreciated or utilized for what it is actually worth unless it is understood in the light of the preliminary chapters.

Dr. Hinman is to be congratulated on this fine book. It is the first book I have seen that treats a special subject primarily and completely for the benefit of the student. He has set down mostly the permanent knowledge and has been careful to leave out the fads of the day; he has exposed himself practically not at all on any controversial matters of belief or treatment. He has ridden only good hobbies. His book is scientifically honest. If used conscientiously it will lead no one astray but will certainly guide anyone along the proper courses.

The second part of the book is divided into two parts. The first deals with general urological diseases, anomalies of development, urinary obstruction and stasis, urogenital infections and urinary lithiasis. The second deals with special diseases and abnormalities of local manifestation of the primary structures of the lower tract, middle tract and upper tract.

As stated, this book does not detail treatment but rather equips one to understand and appreciate the genito-urinary system as an important field in the diagnosis and treatment of urologic conditions. I. S. B.

NAMES OF SURGICAL OPERATIONS. Compiled and arranged by the Western Surgical Association through its Special Committee. Edited by Carl E. Black, A.M., M.D., Jacksonville, Illinois. Saint Paul, Minnesota: Bruce Publishing Company. 1935. Price \$3.00.

Every now and then some generous soul does a tedious and patient piece of labor for the good of the profession. Such a work has just been completed by Dr. Black.

In the operating room any sort of name common to everybody is convenient enough. When it comes to indexing articles it is a wholly different matter; there uniformity is essential. The surgical profession may therefore invoke the blessings, or whatever are rewards for work of this character.
A. E. H.

FOOD AND BEVERAGE ANALYSES. By Milton Arland Bridges, Director of Medicine, Department of Correction Hospitals, New York, etc. Philadelphia: Lea & Febiger. 1935. Price \$3.50.

The nutritionally minded physicians have accumulated many food analyses obtained from individual manufacturers as well as from governmental agencies. The compilation by Bridges will replace this heterogeneous assortment of data for it contains within its covers the chemical and calorific content of natural and specially prepared food products of most if not of all kinds. A particular advantage of this work is the listing of composition, not only in percentage but also in "average" portions. The publishers are to be congratulated on making available these tables for which there has long been a need.
B. Y. G.

INDEX TO VOLUME 32

| | PAGE | | PAGE |
|---|------------------------|--|----------|
| Abdominal Cavity, Rubber Catheter Retained in for Twenty-Six Years—Hill | 333 | Brain, W. Russell, and Strauss, E. B.—Recent Advances in Neurology | 166 |
| Diseases, Early Diagnosis—Bailey | 410 | Bridges, Milton Arlenden—Dietetics for the Clinician.. | 350 |
| Abel, Oliver, Jr.—Use of Mecholyl in Arthritis..... | 351 | Food and Beverage Analyses | 498 |
| Abscess, Perinephritic, Diagnosis and Treatment—McVay | 10 | Brown, E. V. L., et al—1934 Year Book of the Eye, Ear, Nose and Throat..... | 260 |
| Peritonsillar, Calcified Pus in—Meredith..... | 413 | Lawrason—Rules for Recovery from Pulmonary Tuberculosis | 259 |
| Action of the Special Session of the House of Delegates of the American Medical Association on Proposed Legislation by Congress on Sickness or Health Insurance—Editorial | 113 | Lloyd T., et al—Body Mechanics in the Study and Treatment of Disease..... | 345 |
| Adrenal Hypercortical and Hypermedullary Syndromes—Werner | 434 | Burridge, W.—A New Physiological Psychology..... | 309 |
| Advances in Renal Surgery With Particular Reference to Nephroexy—Lowsley | 313 | Cabot, Hugh—The Doctor's Bill..... | 348 |
| Agress, Harry—Heterophile Antibodies in Acute Infectious Mononucleosis | 277 | Cameron, Ewen—Objective and Experimental Psychiatry | 423 |
| Alden, Arthur M.—The Value of Ionization in the Treatment of Certain Forms of Allergy..... | 261 | Care of the Aged, the Dying and the Dead—Worcester and Oliver | 349 |
| Allergy, Value of Ionization in the Treatment of Certain Forms—Alden | 261 | Case Studies in the Psychopathology of Crime—Karpman | 123 |
| Amblyopia, Lead, With Cataract from the Same Source—Sherer | 275 | Cataract, Its Etiology and Treatment—Clapp..... | 258 |
| Amebiasis—Welch | 45 | Chesky, Victor E., and Hertzler, Arthur E.—Surgery of a General Practice..... | 310 |
| American Medical Association Atlantic City Session, 1935—Editorial | 249, 286 | Christie, A. C.—Economic Problems of Medicine..... | 347, 350 |
| Medical Directory—14th Edition—1936—Editorial..... | 415 | Clapp, Clyde A.—Cataract, Its Etiology and Treatment | 258 |
| Anesthesia, Local, Advantage of in Gynecology and Obstetrics—Gellhorn | 143 | Clendenning, Logan—Methods of Treatment..... | 258 |
| Annual Meeting of the Council—Editorial..... | 115 | Clinical Laboratory Methods and Diagnosis—Gradwohl | 497 |
| Meeting of the Ninth Council District—Editorial..... | 378 | Clinical Management of Syphilis—Harness | 497 |
| Meeting of Missouri State Medical Association, Excelsior Springs, 1935—Editorial..... | 30, 115, 156, 201, 247 | Clinical Tuberculosis | 423 |
| Antisepsis, Surgery at the Time of Introduction (Hodgen Lecture)—Sigerist | 169 | Collected Papers of the Mayo Clinic and the Mayo Foundation | 79, 422 |
| Appendicitis, Chronic—Cole | 369 | Collens, William S.—System of Diet Writing..... | 311 |
| Arthritis, Use of Mecholyl in—Abel..... | 351 | Compend of Diseases of the Skin—Schamberg and Wright | 310 |
| Atlantic City Session of the American Medical Association—Editorial | 249, 286 | Council on Pharmacy and Chemistry, Reports of for 1934 | 386 |
| Auditor's Report on Financial Condition of Association for 1934 | 163 | Crippled and Disabled—Kessler..... | 345 |
| Auer, Eugene S.—Carcinoma of the Cervix..... | 47 | Curtis, Arthur Hale—Textbook of Gynecology..... | 80 |
| Automobile Driving, Minimal Visual Requirements for Safe—Mason | 367 | Cushny, Arthur R.—Pharmacology and Therapeutics.. | 260 |
| Axilla and Vulva, Tuberculosis of—Hanks..... | 148 | Dangerous Age in Men—Stone..... | 260 |
| | | Davis, George G., and Earlywine, Joseph L.—The Pneumonokonioses (Silicosis), Bibliography and Laws | 423 |
| | | Definite Diagnosis in General Practice—Kitchens..... | 310 |
| | | Diabetes Mellitus and Obesity—Duncan..... | 344 |
| | | Diabetic Manual for Patients—John..... | 258 |
| | | Dietetics for the Clinician—Bridges..... | 350 |
| | | Dimmitt, Pauline S.—Manual of Clinical Laboratory Methods | 260 |
| | | Diseases of the Mouth and Their Treatment—Prinz... .. | 350 |
| | | of the Skin—Sutton..... | 311 |
| | | Doctor's Bill, The—Cabot..... | 348 |
| | | Dodson, Austin I.—Synopsis of Genito-Urinary Diseases | 310 |
| | | Duncan, Garfield G.—Diabetes Mellitus and Obesity... .. | 344 |
| | | Earlywine, Joseph L., and Davis, George G.—The Pneumonokonioses (Silicosis), Bibliography and Laws | 423 |
| | | Economic Problems of Medicine—Christie..... | 347, 350 |
| | | Electrotherapy and Light Therapy—Kovacs | 498 |
| | | Emerson, Charles Phillips—The Nervous Patient—A Frontier of Internal Medicine..... | 347 |
| | | External Diseases of the Eye—Atkinson..... | 260 |
| | | Feinberg, Samuel M.—Allergy in General Practice.... | 168 |
| | | Fischel, Marguerite K.—The Spastic Child..... | 216 |
| | | Fisher, A. G. Trimbell—Internal Derangements of the Knee Joint | 312 |
| | | Food and Beverage Analyses—Bridges | 498 |
| | | Food for the Diabetic—Huddleson..... | 346 |
| | | Gibb, W. Travis—Minor Surgery in General Practice.. | 259 |
| | | Goldthwait, et al—Body Mechanics in the Study and Treatment of Disease..... | 345 |
| | | Gradwohl, R. B. H.—Clinical Laboratory Methods and Diagnosis | 497 |
| | | Graham, et al—Surgical Diseases of the Chest | 346 |
| | | Great Doctors—Sigerist | 168 |
| | | Groves, Ernest W. Hey—Synopsis of Surgery..... | 309 |
| | | Gutman, Jacob—Modern Drug Encyclopedia and Therapeutic Guide | 79 |
| | | Gynecology—Anspach | 167 |
| | | Hamilton, Alice—Industrial Toxicology..... | 166 |
| | | Harness, Alvin Russell—Clinical Management of Syphilis | 497 |
| | | Heart Visible, The—Polevski..... | 312 |
| | | Hertzler, Arthur E.—Surgical Pathology of the Peritoneum | 347 |
| | | and Chesky, Victor E.—Surgery of a General Practice | 310 |
| | | Hinman, Frank—The Principals and Practice of Urology | 498 |
| | | Hirsch, Edwin W.—The Power to Love..... | 258 |
| | | How to Practice Medicine—Kemp..... | 311 |
| | | Huddleson, Mary Pascoe—Food for the Diabetic..... | 346 |
| | | Hughes' Practice of Medicine..... | 167 |
| | | I Know Just the Thing for That—Montague..... | 80 |

| | PAGE | | PAGE |
|--|------------------------|---|------------------------|
| Complications Developing After Operation for Rectal Fis- tula—Rainey | 320 | Jackson County Medical Society Will Have New Head- quarters | 414 |
| Conjunctiva, Yeast-Like Fungous Infection of—Drake... 6 | | Kansas City Invites the American Medical Association for 1936 Session | 156 |
| Connell, Evan S.—Ovarian Therapy in Nose and Throat Surgery | 372 | Southwest Clinical Society | 378 |
| Conrad, S. J.—The Diagnosis of "Neurosis" | 233 | Legislature Provides Increase of Physicians at State Hospitals | 202 |
| Cooperative State Tuberculosis Control Program—Child... 240 | | Many Medical Meetings to be Held in Missouri..... 380 | |
| Coronary Disease, Clinical and Pathologic Studies of— Wilhelmy and Helwig | 476 | Medical Information Bureau | 488 |
| Corpus Uteri, Carcinoma of; Relationship of Late Men- struation to—Crossen and Hobbs..... | 361 | Mental Health, an Important Problem to the General Practitioner | 203 |
| Correspondence— | | Midwest Polio Association of St. Louis..... | 336 |
| Annals of Medical History..... | 165 | Missouri Academy of Science..... | 490 |
| Costen, James B.—Group of Symptoms Frequently In- volved in General Diagnosis, Typical of Sinus and Ear Disease and of Mandibular Joint Pathology..... | 184 | Emergency Revenue Act of 1935..... | 380 |
| Coughlin, Wm. T., and McCaughan, John M.—Tumors of the Head of the Pancreas..... | 425 | New Health Survey | 454 |
| Council on Medical Education and Hospitals Adopts New Policy—Editorial | 455 | Neurological Hospital at Kansas City..... | 414 |
| Crossen, Robert J.—New Electrode for Conization of the Cervix | 125 | Physical Therapists to Convene in Kansas City..... | 335 |
| Robert J., and Hobbs, John E.—Relationship of Late Menstruation to Carcinoma of the Corpus Uteri.... | 361 | Physician-Patient Relationship Recognized by New York Legislature | 336 |
| D | | Physicians and the Optical Retail Code..... | 154 |
| Dauksys, Joseph—Xanthomatosis: Schuller-Christian's Disease | 466 | Poliomyelitis | 30 |
| Diabetic Coma Without the Presence of Diabetic Acid or Acetone in the Urine—Neuhoff..... | 235 | Progress of Plans for Economic Security..... | 69 |
| Diagnosis and Management of Cancer of the Stomach— Hunt | 431 | Proposed Amendments to the Constitution..... | 201 |
| and Treatment of Perinephritic Abscess—McVay.... 10 | | Radio Advertising | 286 |
| Differential, of Imaginary Diseases of the Ear, Nose and Throat—Gilliland | 394 | St. Louis Clinics | 202, 248 |
| of "Neurosis"—Conrad | 233 | Health Division to Give Instruction Courses—Editorial 490 | |
| of the Childhood Type of Tuberculosis—Mantz..... 13 | | Southern Medical Association | 248, 453, 489 |
| Dickson, Frank D.—A Survey of the Management of In- tracapsular Fracture of the Neck of the Femur..... | 481 | State Controlled Medical Service to Be Debated..... | 455 |
| Diet in Health and Disease—Musser..... | 81 | Status of Bills in Legislature..... | 116 |
| Differential Diagnosis of Imaginary Diseases of the Ear, Nose and Throat—Gilliland | 394 | of County Medical Society Plans..... | 414 |
| Dilaudid Addiction—Wakeman | 141 | Tumor Clinic at Fulton..... | 69 |
| Dinitrophenol, What May We Expect of—Jones..... 196 | | Walter Williams, Editor, Educator, Internationalist.. 379 | |
| Diphtheria Campaign in St. Louis and Kansas City— Editorial | 154 | Washington, D. C., Plan of Medical Care Discussed... 335 | |
| Immunization—Editorial | 248 | Woolsey, Ross A., M.D..... | 285 |
| Problem in St. Louis—Sigoloff..... | 103 | Ehlers, Charles W., and Henske, Andrew C.—Influence of Pneumothorax Treatment on the Prognosis of Tuher- culosis | 41 |
| Doctor of Tomorrow, The—Miller..... | 221 | Electrode, New, for Conization of the Cervix—Crossen.. 125 | |
| Drake, Avery A.—Yeast-Like Fungous Infection of the Conjunctiva | 6 | Ellis, Max M., and Neal, M. Pinson—Experimental Pro- duction of Fat (Pancreatic) Necrosis..... | 37 |
| Drugs, Site of Action on the Oculo-Autonomic System— Beisbarth | 151 | Excelsior Springs Session, Missouri State Medical As- sociation—Editorial..... | 30, 115, 156, 201, 247 |
| Dysentery, Bacillary, An Outbreak of at the St. Louis City Hospital—Sigoloff and Baron..... | 194 | F | |
| E | | Falk, O. P. J.—Atypical Thyroid Disorders..... | 146 |
| Ear, Nose and Throat, Differential Diagnosis of Imaginary Diseases—Gilliland | 394 | Fat (Pancreatic) Necrosis, Experimental Production of— Neal and Ellis | 37 |
| Early Diagnosis in Abdominal Diseases—Bailey..... 410 | | Femur, Neck of the, Survey of the Management of In- tracapsular Fracture of—Dickson..... | 481 |
| Ectopic Pregnancy, Pregnancy Test as Guide in Manage- ment of—Roblee | 50 | Fever, Rocky Mountain Spotted—Holdenried and Hage- busch | 199 |
| Editorials— | | Financial Statement for 1934, Missouri State Medical Association, Auditor's Report—Miscellany | 163 |
| Action of the Special Session of the House of Delegates of the American Medical Association on Proposed Legislation by Congress on Sickness or Health In- surance | 113 | Fischel, Ellis, et al—First Year's Operation of the Tumor Clinic at Fulton State Hospital—Special Article.... 59 | |
| American Medical Directory—14th Edition—1936.... 415 | | Fourth of July Accidents—Editorial..... | 287 |
| Annual Meeting of the Council..... | 115 | Fractures, Compression, of the Spine—Jostes..... | 136 |
| of the Missouri State Medical Association—Editorial.....30, 115, 156, 201, | 247 | Furlow, Leonard T., and Sachs, Ernest—Classification and Treatment of Acute Head Injuries..... | 177 |
| of the Ninth Councilor District..... | 378 | G | |
| Atlantic City Session of the American Medical Associa- tion | 249, 286 | Gallagher, W. J.—Hydrocephalus (Dura-Ureteral Drain- age) | 402 |
| Board of Aldermen Uphold Science..... | 202 | Gallbladder Surgery, Cardiac Hazards of—Williams... 236 | |
| Brinkley Decision Upheld by Federal Court..... | 336 | Gas Gangrene—Grantham | 273 |
| Cancer Clinic to Have Hospital Facilities..... | 453 | Gastro-Intestinal Series, Intravenous and Oral Cholecys- tography—Scott | 324 |
| Change in Directorship of St. Louis Child Guidance Clinic | 30 | Gellhorn, George—Advantage of Local Anesthesia in Gynecology and Obstetrics | 143 |
| Clinic Abuse | 203 | Genito-Urinary Infections—Oshorn | 444 |
| Council on Medical Education and Hospitals Adopts New Policy | 455 | System, Tuberculosis of the—Burford..... | 316 |
| Diphtheria Campaign in St. Louis and Kansas City... 154 | | Gilkey, Harry M.—Heart Disease in Children..... | 356 |
| Immunization | 248 | Gilliland, Oliver—Differential Diagnosis of Imaginary Diseases of the Ear, Nose and Throat..... | 394 |
| Excelsior Springs Session of the Missouri State Medi- cal Association..... | 30, 115, 156, 201, 247 | Goat Milk Infection, Undulant Fever From—Robinson.. 239 | |
| Fourth of July Accidents..... | 287 | Gonorrhea, Male, Old and the New in Management of— Stockwell | 387 |
| Good Health Record for 1935 Indicated | 491 | Ocular Complications—Swah | 1 |
| Government Establishes Narcotic Farm | 489 | Good Health Record for 1935 Indicated—Editorial.... 491 | |
| Hospital Management | 154 | Government Establishes Narcotic Farm—Editorial.... 489 | |
| Hotels and Rates at Excelsior Springs..... | 157 | Grantham, Saml. A., Jr.—Gas Gangrene..... | 273 |
| | | Group of Symptoms Frequently Involved in General Diag- nosis, Typical of Sinus and Ear Disease and of Mandibular Joint Pathology—Costen | 184 |
| | | H | |
| | | Hagehusch, O. E., and Holdenried, A. R.—Rocky Moun- tain Spotted Fever | 199 |
| | | Hammond, John J., and Smith, Russell L.—Pneumothorax Treatment of Lohar Pneumonia..... | 441 |
| | | Hanks, Ralf—Tuberculosis of the Axilla and Vulva..... | 148 |

| | PAGE | | PAGE |
|--|------|---|--|
| Head Injuries, Acute, Classification and Treatment—Furlow and Sachs | 177 | Minimal Visual Requirements for Safe Automobile Driving—Mason | 367 |
| Heart Disease in Children—Gilkey | 356 | Miscellany— | |
| Lesions, Valvular, Pulmonary Tuberculosis Associated With—Buckingham and Hoffman | 438 | Budget for 1935 | 163 |
| Helwig, Ferdinand C., and Wilbelmy, Ellis W.—Clinical and Pathologic Studies of Coronary Disease | 476 | Financial Statement for 1934, Missouri State Medical Association, Auditor's Report | 163 |
| Henske, Andrew C., and Ehlers, Charles W.—Influence of Pneumothorax Treatment on the Prognosis of Tuberculosis | 41 | Pan American Medical Cruise, Sixth—Bohan | 420 |
| Hereditary Blindness in Missouri—Lamb | 398 | Relief Expenditures in 1934 | 256 |
| Heterophile Antibodies in Acute Infectious Mononucleosis—Agress | 277 | Socialized Medicine | 496 |
| Hill, Roland—Rubber Catheter Retained in Abdominal Cavity for Twenty-Six Years | 333 | Missouri Academy of Science—Editorial | 490 |
| Hobbs, John E., and Crossen, Robert J.—Relationship of Late Menstruation to Carcinoma of the Corpus Uteri | 361 | Emergency Revenue Act of 1935—Editorial | 380 |
| Hodgen Lecture: Surgery at the Time of the Introduction of Antisepsis—Sigerist | 169 | State Medical Association 78th Annual Meeting Proceedings | 291 |
| Hoffman, J. S., and Buckingham, W. W.—Pulmonary Tuberculosis Associated With Valvular Heart Lesions | 438 | Mononucleosis, Acute Infectious, Heterophile Antibodies in—Agress | 277 |
| Holdenried, A. R., and Hagebusch, O. E.—Rocky Mountain Spotted Fever | 199 | Moore, Neil S.—Transurethral Prostatotomy | 25 |
| Hospital Management—Editorial | 154 | Musser, John H.—Diet in Health and Disease | 81 |
| Hunt, Claude J.—Diagnosis and Management of Cancer of the Stomach | 431 | | |
| Hyperthyroidism, Management of—Mastin | 98 | N | |
| Hydrocephalus (Dura-Ureteral Drainage)—Gallagher | 402 | | |
| I | | Neal, M. Pinson, and Ellis, Max M.—Experimental Production of Fat (Pancreatic) Necrosis | 37 |
| Infant Feeding, Changing Practices in—Neff | 406 | Necrosis, Fat (Pancreatic), Experimental Production of—Neal and Ellis | 37 |
| Infections, Genito-Urinary—Osborn | 444 | Neff, Frank C.—Changing Practices in Infant Feeding | 406 |
| Influence of Pneumothorax Treatment on the Prognosis of Tuberculosis—Henske and Ehlers | 41 | Nephrectomy for Tuberculosis, Pregnancies After—Lissack | 450 |
| Intracapsular Fracture of the Neck of the Femur, A Survey of the Management of—Dickson | 481 | Nephropexy, Particular Reference to in Advances in Renal Surgery—Lowsley | 313 |
| Ionization, The Value of, in the Treatment of Certain Forms of Allergy—Alden | 261 | Neuhoff, F.—Diabetic Coma Without the Presence of Diabetic Acid or Acetone in the Urine | 235 |
| J | | "Neurosis," The Diagnosis of—Conrad | 233 |
| Jackson County Medical Society Will Have New Headquarters—Editorial | 414 | Neurotic, The—A Challenge—Robinson | 53 |
| Jones, O. S.—What May We Expect of Dinitrophenol? | 196 | New Growth of Descending Colon and Upper Part of Sigmoid Flexure—Smith | 283 |
| Jostes, Frederick A.—Compression Fractures of the Spine | 136 | Health Survey—Editorial | 454 |
| K | | Neurological Hospital at Kansas City—Editorial | 414 |
| Kansas City Invites the American Medical Association for 1936 Session—Editorial | 156 | News Notes | 31, 71, 116, 157, 204, 250, 287, 337, 381, 415, 455, 491 |
| Southwest Clinical Society—Editorial | 378 | Nose and Throat Surgery, Ovarian Therapy in—Connell | 372 |
| Knight, John S.—Bronchoscopy | 264 | | |
| Kotkis, A. J.—Present Day Role of Physical Therapy in Medicine | 329 | O | |
| Kulowski, Jacob—Unusual Pyogenic Osteomyelitis | 85 | | |
| L | | Obituary— | |
| Lamb, Harvey D.—Hereditary Blindness in Missouri | 398 | Allen, Chas. Lewis | 382 |
| Lead Amblyopia With Cataract From the Same Source—Sberer | 275 | Amos, Newton Woodbury | 383 |
| Legislature Provides Increase of Physicians at State Hospitals—Editorial | 202 | Armour, Wallace A. | 417 |
| Lissack, Edmund—Pregnancies After Nephrectomy for Tuberculosis | 450 | Armstrong, Minary James | 74 |
| Lowenstein, Paul S.—Thrombo-Angiitis Obliterans (Buerger) | 227 | Barnhard, D. A. | 33 |
| Lowsley, Oswald S.—Advances in Renal Surgery With Particular Reference to Nephropexy | 313 | Blackburn, Porter D. | 384 |
| Lyster, J. Curtis—Recent Cardiovascular Therapy | 138 | Borgelt, Geo. B. | 34 |
| M | | Breyfogle, Herbert A. | 493 |
| Management of Hyperthyroidism—Mastin | 98 | Brown, Addison Fletcher | 417 |
| Mantz, Herbert L.—Diagnosis of Childhood Type of Tuberculosis | 13 | Burke, Foster W. | 159 |
| Many Medical Meetings to Be Held in Missouri—Editorial | 380 | Butler, Thomas B. | 338 |
| Mason, R. E.—Minimal Visual Requirements for Safe Automobile Driving | 367 | Christian, Charles Harvey | 458 |
| Mastin, Edward Vernon—Management of Hyperthyroidism | 98 | Clark, Allen Benson | 458 |
| McCaughan, John M., and Coughlin, Wm. T.—Tumors of the Head of the Pancreas | 425 | Dixon, Elliott Knight | 494 |
| McVay, James R.—Diagnosis and Treatment of Perinephritic Abscess | 10 | Dorsey, John Joseph | 457 |
| Mecholyl in Arthritis—Abel | 351 | Dunigan, James P. | 159 |
| Medical History, Annals of—Correspondence | 165 | Edmonds, Oliver R. | 34 |
| Information Bureau—Editorial | 488 | Geiger, Jacob | 118 |
| Menstruation, Late, Relationship to Carcinoma of the Corpus Uteri—Crossen and Hobbs | 361 | Gossage, William LaFayette | 74 |
| Mental Health, an Important Problem to the General Practitioner—Editorial | 203 | Greene, Harold H. | 34 |
| Meredith, A. L.—Calcified Pus in Peritonsillar Abscess | 413 | Griest, Joseph Taylor | 253 |
| Midwest Polio Association of St. Louis—Editorial | 336 | Hamilton, Walter C. | 206 |
| Miller, E. Lee—The Doctor of Tomorrow | 221 | Hammontree, Daniel E. | 75 |
| | | Harnisch, Henry J. | 73 |
| | | Hinchey, Frank | 74 |
| | | Jackson, Jabez North | 251 |
| | | Lavender, Charles Lucien | 206 |
| | | Lingenfelder, Julius | 159 |
| | | Lowrey, Ernest | 383 |
| | | McGhee, Homer E. | 34 |
| | | Mills, Roy Fallas | 418 |
| | | Montgomery, W. Elmer | 418 |
| | | Mook, William Henson | 338 |
| | | Moore, Thornton E. | 75 |
| | | Norris, Wilford A. | 382 |
| | | Oehler, Emanuel F. | 339 |
| | | Pauley, William H. | 338 |
| | | Poague, Samuel A. | 253 |
| | | Pope, Charles H. | 339 |
| | | Popplewell, Wm. H. | 290 |
| | | Reynolds, John B. | 494 |
| | | Rhea, Calvin A. | 75 |
| | | Richter, Edward | 119 |
| | | Rotter, Charles F. | 337 |
| | | Schaub, Charles W. | 383 |
| | | Sherman, David Ulysses | 206 |
| | | Smith, C. Wilbur | 74 |
| | | Owen A. | 206 |
| | | William P. | 382 |
| | | Stadler, Stephen A. | 73 |
| | | Stierberger, Edward A. | 253 |

| | PAGE | | PAGE |
|---|---------|---|--|
| Sullivan, A. H. W..... | 290 | Rubber Catheter Retained in Abdominal Cavity for | |
| Sutter, John H..... | 253 | Twenty-Six Years—Hill | 333 |
| Tinsley, Elisha Whitten | 206 | Ryland, C. T.—Our Obligation to Organized Medicine... | 217 |
| Tucker, John T..... | 119 | | |
| Van Eman, Fred E..... | 494 | S | |
| Webb, Wm. Daniel | 290 | Sachs, Ernest, and Furlow, Leonard T.—Classification and | |
| Welch, Albert James | 118 | Treatment of Acute Head Injuries..... | 177 |
| Williams, Paul Randol | 457 | Sacro-Iliac Strain, Acute—Stofer | 133 |
| Wolfner, Henry Lincoln | 458 | St. Louis Clinics—Editorial | 202, 248 |
| Wolter, Otto L..... | 34 | Health Division to Give Instructions Courses—Editorial | 490 |
| Yates, Martin | 417 | Schisler, Edwin—High Blood Pressure as a Symptom and | |
| Young, John Calvin | 205 | When It May Be Called Malignant..... | 56 |
| O'Brien, C. S.—Tuberculous Uveitis..... | 392 | Schuller-Christian's Disease: Xanthomatosis—Dauksys... | 466 |
| Ocular Complications of Gonorrhea—Swab..... | 1 | Scott, Wendell G.—Gastro-Intestinal Series, Intravenous | |
| Oculo-Autonomic System, Site of Action of Drugs on— | | and Oral Cholecystography | 324 |
| Beisbarth | 151 | Sherer, Jos. W.—Lead Amblyopia With Cataract From the | |
| Old and New in Management of Male Gonorrhea—Stock- | | Same Source | 275 |
| well | 387 | Sherwin, Charles F.—Principles of Safety in Thyroid | |
| Optical Retail Code and Physicians—Editorial..... | 154 | Surgery | 473 |
| Organized Medicine, Our Obligation to—Ryland..... | 217 | Sigerist, Henry E.—Surgery at the Time of the Introduc- | |
| Osborn, A. L.—Genito-Urinary Infections..... | 444 | tion of Antisepsis (Hodgen Lecture)..... | 169 |
| Osteomyelitis, Unusual Pyogenic—Kulowski..... | 85 | Sigmoid Flexure, New Growth of Upper and of Descend- | |
| Our Obligation to Organized Medicine—Ryland..... | 217 | ing Colon—Smith | 283 |
| Ovarian Therapy in Nose and Throat Surgery—Connell | 372 | Sigoloff, E., and Baron, M. E.—An Outbreak of Bacillary | |
| | | Dysentery at the St. Louis City Hospital..... | 194 |
| P | | —Diphtheria Problem in St. Louis..... | 103 |
| Pain of Emotional Origin—Cady..... | 190 | Site of Action of Drugs on the Oculo-Autonomic Sys- | |
| Pan American Medical Cruise, Sixth—Miscellany..... | 420 | tem—Beisbarth | 151 |
| Pancreas, Tumors of the Head of—Coughlin and Mc- | | Skin Carcinoma, Early, Pathologic and Clinical Aspects of | |
| Caughan | 425 | —Sutton | 224 |
| Pathologic and Clinical Aspects of Early Skin Carcinoma | | Smith, Frank J.—New Growth of Descending Colon and | |
| —Sutton | 224 | Upper Part of Sigmoid Flexure | 283 |
| Physical Factors in Development of the Psychoses—Rob- | | Russell L., and Hammond, John J.—Pneumothorax | |
| inson | 408 | Treatment of Lobar Pneumonia..... | 441 |
| Therapists to Convene in Kansas City—Editorial..... | 335 | Society Proceedings— | |
| Therapy in Medicine, The Present Day Role of—Kotkis | 329 | Adair County Medical Society..... | 35 160, 254 |
| Physician-Patient Relationship Recognized by New York | | Bates County Medical Society..... | 120 |
| Legislature—Editorial | 336 | Boone County Medical Society..... | 76 |
| Physicians and the Optical Retail Code—Editorial..... | 154 | Buchanan County Medical Society..... | |
| Pneumonia, Lobar, Pneumothorax Treatment of—Ham- |  | ..... | 35, 120, 161, 207, 254, 384, 495 |
| mond and Smith | 441 | Caldwell-Livingston County Medical Society..... | 342 |
| Pneumothorax Treatment, Influence of, on the Prognosis | | Cape Girardeau County Medical Society..... | |
| of Tuberculosis—Henske and Ehlers..... | 41 | ..... | 35, 76, 120, 161, 207, 254, 307, 342, 385, 419 |
| Treatment of Lobar Pneumonia—Hammond and Smith | 441 | Carter-Shannon County Medical Society..... | 255, 343 |
| Poliomyelitis—Editorial | 30 | Cass County Medical Society..... | 76, 207, 343 |
| Pregnancies After Nephrectomy for Tuberculosis—Lissack | 450 | Clay County Medical Society..... | 35, 76, 495 |
| Pregnancy Test as Guide in Management of Ectopic Preg- | | Cooper County Medical Society..... | 161 |
| nancy—Roblee | 50 | Greene County Medical Society..... | 77, 161, 207, 385, 459 |
| Present Day Role of Physical Therapy in Medicine—Kotkis | 329 | Henry County Medical Society..... | 208 |
| Principles of Safety in Thyroid Surgery—Sherwin..... | 473 | Jasper County Medical Society..... | |
| Prognosis of Tuberculosis, Influence of Pneumothorax |  | ..... | 36, 77, 120, 162, 208, 255, 307, 419, 459, 495 |
| Treatment on—Henske and Ehlers..... | 41 | Jefferson County Medical Society..... | 77, 256 |
| Progress of Plans for Economic Security—Editorial..... | 69 | Kansas City Pathological Society..... | 340 |
| Proposed Amendments to the Constitution—Editorial... | 201 | Missouri State Medical Association—78th Annual Ses- | |
| Prostatitis, Chronic: Its Benefits and Dangers in Prostatic | | sion | 160, 210, 291 |
| Urogenic Obstruction—Stutsman | 24 | Ninth Councilor District | 78 |
| Prostatotomy, Transurethral—Moore | 25 | Nodaway County Medical Society..... | 121 |
| Psychoses, Physical Factors in Development of—Robinson | 408 | Perry County Medical Society..... | 209, 343, 419 |
| Pulmonary Tuberculosis Associated With Valvular Heart | | Pettis County Medical Society..... | 209, 256 |
| Lesions—Buckingham and Hoffman | 438 | Randolph-Monroe County Medical Society..... | |
| Pyelonephritis, Chronic, in Infants and Children—Caulk | 461 | ..... | 78, 122, 209, 256, 420, 459 |
| | | Ray County Medical Society..... | 122, 162, 343 |
| Q | | St. Francois-Iron-Madison-Washington-Reynolds County | |
| Quinidine Sulphate: Its Action and Uses—Bohan..... | 353 | Medical Society | 162 |
| | | Ste. Genevieve County Medical Society..... | 78 |
| R | | Saline County Medical Society..... | 459 |
| Radiation Therapy in the Treatment of Disease—Virden.. | 400 | Schuyler County Medical Society..... | 209 |
| Radio Advertising—Editorial | 286 | Six County Medical Society..... | 78 |
| Rainey, Warren R.—Complications Developing After Op- | | South Central Counties Medical Society..... | 122, 308, 460 |
| eration for Rectal Fistula..... | 320 | Southern Medical Association—Editorial..... | 248, 453, 489 |
| Rectal Fistula, Operation for, Complications Developing | | Spector, H. I.—Municipal Program for the Control of | |
| After—Rainey | 320 | Tuberculosis | 128 |
| Rector, Frank Leslie—Cancer Survey of Missouri..... | 61, 105 | Spencer, Floyd H., et al—First Year's Operation of the | |
| Relationship of Late Menstruation to Carcinoma of the | | Tumor Clinic at Fulton State Hospital—Special Article | 59 |
| Corpus Uteri—Crossen and Hobbs..... | 361 | Spine, Compression Fractures of—Jostes..... | 136 |
| Relief Expenditures in 1934—Miscellany..... | 256 | State Controlled Medical Service to Be Debated—Editorial | 455 |
| Renal Surgery, Advances in, With Particular Reference to | | Status of Bills in Legislature—Editorial..... | 116 |
| Nephropexy—Lowsley | 313 | of County Medical Society Plans—Editorial..... | 414 |
| Robinson, David B.—Undulant Fever From Goat Milk | | Stockwell, A. Lloyd—The Old and the New in Manage- | |
| Infection | 239 | ment of Male Gonorrhea..... | 387 |
| G. Wilse—Physical Factors in the Development of the | | Stofer, D. D.—Acute Sacro-Iliac Strain..... | 133 |
| Psychoses | 408 | Stomach, Diagnosis and Management of Cancer of—Hunt | 431 |
| G. Wilse, Jr.—The Neurotic, A Challenge..... | 53 | Stutsman, David B.—Chronic Prostatitis: Its Benefits and | |
| Roblee, Melvin A.—Pregnancy Test as Guide in Manage- | | Dangers in Prostatic Urogenic Obstruction..... | 24 |
| ment of Ectopic Pregnancy..... | 50 | Surgery at the Time of the Introduction of Antisepsis | |
| Robnett, D. A., et al—First Year's Operation of the Tu- | | (Hodgen Lecture)—Sigerist | 169 |
| mor Clinic at Fulton State Hospital—Special Article | 59 | Survey of the Management of Intracapsular Fracture | |
| Rocky Mountain Spotted Fever—Holdenried and Hage- | | of the Neck of the Femur—Dickson..... | 481 |
| busch | 199 | Sutton, Richard L., Jr.—Pathologic and Clinical Aspects | |
| Rose, D. K.—Bladder Catheterization..... | 94 | of Early Skin Carcinoma | 224 |
| —Urinary Incontinence | 363 | Swab, Charles M.—Ocular Complications of Gonorrhea.. | 1 |
| | | Syndromes, Adrenal, Hypercortical and Hypermedullary | |
| | | —Werner | 434 |

| T | PAGE |
|---|---|
| Thrombo-Angiitis Obliterans (Buerger)—Lowenstein..... | 227 |
| Thyroid Disorders, Atypical—Falk..... | 146 |
| Surgery, Principles of Safety in—Sherwin..... | 473 |
| Transurethral Prostatotomy—Moore..... | 25 |
| Trauma of the Urinary Tract—Young..... | 279 |
| Treatment of Childhood Tuberculosis—Berger..... | 20 |
| Tuberculosis, Childhood, Treatment of—Berger..... | 20 |
| Childhood Type, Diagnosis of—Mantz..... | 13 |
| Municipal Program for the Control of—Spector..... | 128 |
| of the Axilla and Vulva—Hanks..... | 148 |
| of the Genito-Urinary System—Burford..... | 316 |
| Pregnancies After Nephrectomy for—Lissack..... | 450 |
| Prognosis of, Influence of Pneumothorax Treatment on—Henske and Ehlers..... | 41 |
| Pulmonary, Associated With Valvular Heart Lesions—Buckingham and Hoffman..... | 438 |
| The Cooperative State Control Program—Child..... | 240 |
| Tuberculous Uveitis—O'Brien..... | 392 |
| Tumor Clinic at Fulton—Editorial..... | 69 |
| Clinic at Fulton State Hospital, First Year's Operation of—Spencer, Robnett and Fischel..... | 59 |
| Tumors of the Head of the Pancreas—Coughlin and McCaughan..... | 425 |
| U | |
| Undulant Fever From Goat Milk Infection—Robinson... | 239 |
| Unusual Pyogenic Osteomyelitis—Kulowski..... | 85 |
| Urinary Incontinence—Rose..... | 363 |
| Tract, Trauma of—Young..... | 279 |
| Urologic Findings in General Practice—Van Ravenswaay | 448 |
| Use of Mecholyl in Arthritis—Abel..... | 351 |
| Uveitis, Tuberculous—O'Brien..... | 392 |
| V | |
| Value of Ionization in the Treatment of Certain Forms of Allergy—Alden..... | 261 |
| Van Ravenswaay, Alexander—Urologic Findings in General Practice..... | 448 |
| Virden, C. Edgar—Radiation Therapy in the Treatment of Disease..... | 400 |
| Visual Requirements, Minimal, for Safe Automobile Driving—Mason..... | 367 |
| Vulva and Axilla, Tuberculosis of—Hanks..... | 148 |
| W | |
| Wakeman, J. Newton—Dilaudid Addiction..... | 141 |
| Walter Williams, Editor, Educator, Internationalist—Editorial..... | 379 |
| Washington, D. C., Plan of Medical Care—Editorial..... | 335 |
| Welch, Albert S.—Amebiasis..... | 45 |
| Werner, August A.—The Adrenal Hypercortical and Hypomedullary Syndromes..... | 434 |
| Wilhelmy, Ellis W., and Helwig, Ferdinand C.—Clinical and Pathologic Studies of Coronary Disease..... | 476 |
| Williams, Vincent T.—The Cardiac Hazards of Gallbladder Surgery..... | 236 |
| Woman's Auxiliary..... | 36, 122, 162, 215, 308, 343, 385, 420, 460, 496 |
| Woolsey, Ross A., M.D.—Editorial..... | 285 |
| X | |
| Xanthomatosis: Schuller-Christian's Disease—Dauksys.. | 466 |
| Y | |
| Yeast-Like Fungus Infection of the Conjunctiva—Drake | 6 |
| Young, H. McClure—Trauma of the Urinary Tract..... | 279 |
| John S.—Cholecystitis..... | 374 |

HEMOLYTOPOIETIC EQUILIBRIUM AND EMERGENCY SPLENECTOMY

During the last five years their clinical investigation of diseases involving the spleen has resulted in Charles A. Doan, George M. Curtis and B. K. Wiseman, Columbus, Ohio (Journal A. M. A., Nov. 16, 1935), advising and performing splenectomy in thirty-one cases. In each instance careful and thorough laboratory studies were made the basis for differential diagnosis and for an attempted appraisal of the hemolytopoietic equilibrium, preliminary to, during and subsequent to removal of the spleen. Seventeen of the cases represented a variety of syndromes. The operative mortality

in this group was five, three of the fatalities being far advanced cases of Banti's syndrome; two patients with early Banti's disease survived splenectomy and have been greatly benefited by the procedure up to the present time. The technical difficulties of splenectomy in advanced Banti's disease suggest reliance on ligation of the splenic artery as the procedure of choice if operative intervention is necessary. The authors state that the pathologic physiology of the spleen may be manifest through either or both of two mechanisms (1) inhibitory, (2) destructive—and may affect any or all of the circulating blood elements. The spleen is the major pathologic agent in congenital hemolytic jaundice. Splenectomy is indicated as a prophylactic measure against clinical exacerbations of excessive hemolytic activity in the chronic and subacute manifestations of the disease. It is also the therapeutic procedure of choice in acute hemoclastic crises, whether the crisis is of spontaneous or of precipitated origin, and regardless of the severity of the anemia. The immediacy of the erythrocyte response following splenectomy in hemolytic jaundice is dramatic, occurring on the operating table. It is usually a million or more cells per cubic millimeter in quantity and represents a true increase in total available circulating units. This autotransfusion removes the necessity for preoperative and/or post-operative transfusions. Splenectomy is not contraindicated in properly selected cases of thrombopenic purpura in acute crisis, provided adequate preoperative blood transfusions are given. The immediacy of the beginning recovery and reappearance of blood platelets in the circulation following splenectomy in thrombopenic purpura may be quite as dramatic as the changes noted in hemolytic jaundice.

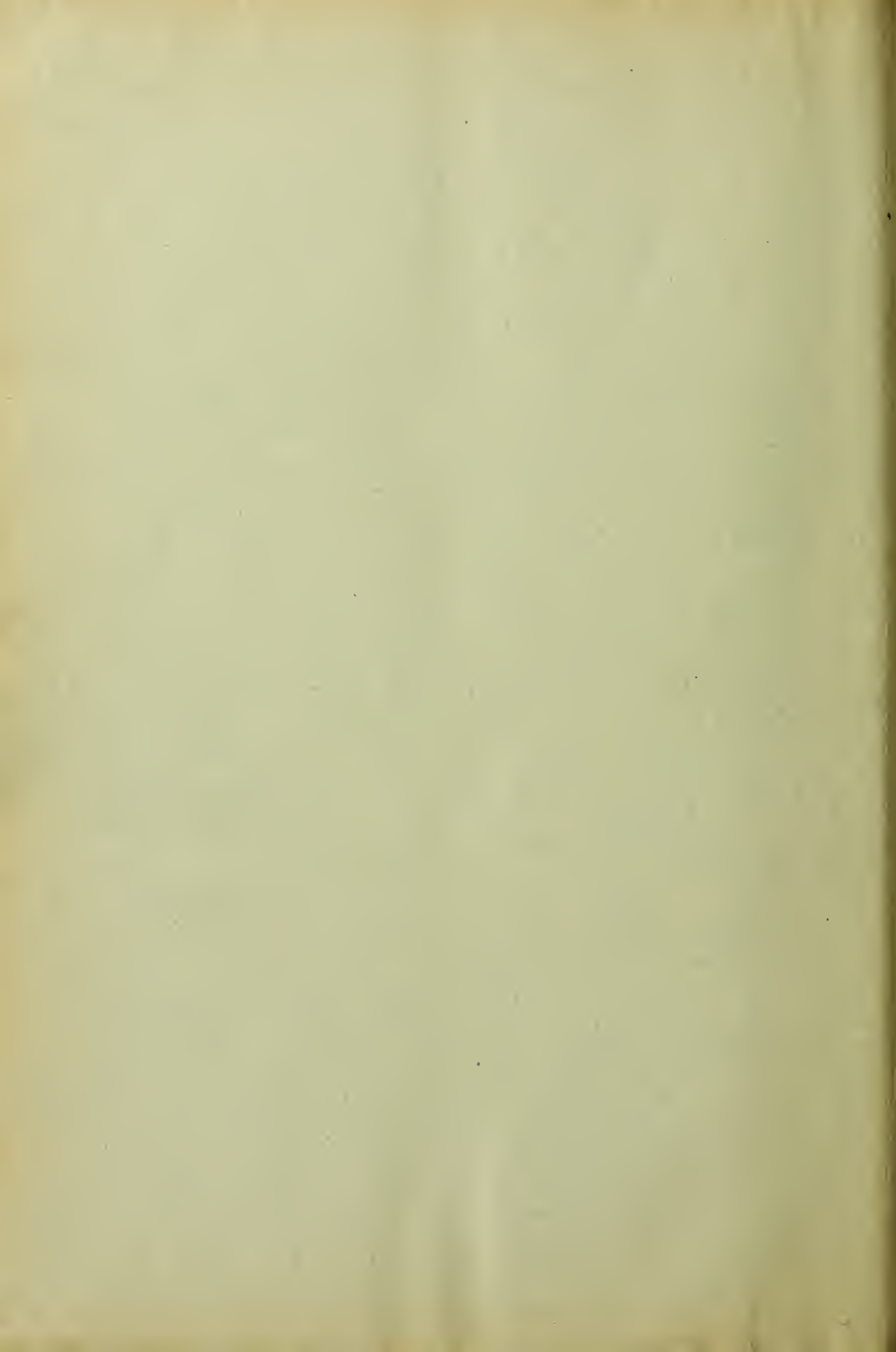
FUNCTIONAL STUDIES IN PATIENTS WITH NEURODERMATOSES

Careful study of patients has convinced John M. van de Erve, Charleston, S. C., and S. William Becker, Chicago (Journal A. M. A., Oct. 5, 1935), that an underlying instability is present and plays an important rôle in the development of the neurodermatoses as well as other functional diseases, including those that can be proved to be allergic. The group of manifestations common to all patients with neurodermatoses may be interpreted as representing general features, mainly endocrine, nervous and vascular. There is an underlying protoplasmic instability shared by every cell of the body. Since the most prominent manifestations refer to the vascular and especially the nervous system, the term "neurocirculatory instability" was coined to represent the condition, although "protoplasmic instability" might be preferred. The psychomotor panel presents the average characteristics of patients with neurocirculatory instability and furnishes a basis for psychotherapy. Therapeutic methods designed to correct the underlying instability and exhaustion adjust some of these factors automatically by decreasing nervous irritability, but this adjustment can be facilitated by a brief psychotherapeutic session. Patients with neurodermatoses tend to drift into occupations requiring more activity and responsibility than usual, and they are overconscientious in performance of their duties, which accounts for the increased mental and physical stress. The therapeutic response to the added treatment of rest, relaxation, sunshine therapy, sedation, and reeducation as protection from useless worry and strain and as protection against the unavoidable but nevertheless very real shocks and stresses of ordinary life in an unsettled economic world has yielded gratifying results.









415
169



